ADULT READING ACQUISITION: A STUDY OF ERROR TYPES AND RELATED DIFFICULTIES OF ADULTS ENROLLED IN LITERACY CLASSES.

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I certify that this thesis has been composed by myself and is my own work.

ABSTRACT

This study involved the close observation of the reading of 59 adults in literacy tuition and 25 twelve-year old children in remedial classes, and the recording of their oral reading errors and ability in comprehension, short term memory, word reading and definitions measures. Fundamental differences were found in the structures of the two samples and their approach to the reading task.

Differences between subjects in the adult sample stemmed from the presence or not of semantic acceptability among errors coupled with ability in areas like comprehension, definitions skills and metalanguage.

The measures used by which the adults were grouped by the Literacy Scheme were found to be inadequate and alternative adult groupings were discovered in the corpus of the data.

Suggestions were made for incorporating meaning related tasks into the teaching of reading to adults.

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CHAPTER 1. INTRODUCTION.

PART I.

1. Inception.

The Researcher's idea for an investigation of adult reading acquisition developed from an initial interest in the processes by which children learn to read. A previous study (Cooper, 1975) aimed at evaluating the effectiveness of a newly published reading scheme for young children, had provided, by means of the recording and analysis of oral reading errors, a technique previously used by others, detailed information about the children's reading strategies and interactions with text, the kinds of linguistic information they used and how the language of the reading primer together with the teaching method used affected their reading.

Although there were several existing reports at that time about the reading acquisition processes of children, based upon information gained from the analysis of oral reading errors, very few similar close observations had been made of the reading behaviour of adult learners and none using error analysis as a technique.

Error analysis was felt to be an obvious way of comparing the reading strategies of adults with those of children, while highlighting differences among adults too.

In spite of the lack of information in the area and the now apparently more readily available samples of adults to observe, there were from the outset some doubts about the feasibility of successfully carrying out an observational study of the kind intended. These doubts sprang from a concern that the data collected would almost certainly be non-parametric and therefore possibly problematical of analysis, the experimental situation would be non-clinical and the results therefore difficult of generalisation. An additional consideration, taken into account when deciding how to approach the collection of data, was that the intended subjects might be personally disturbed by the observations.

At the time, there was little technical knowledge about subjects of this kind, methods of gathering data hitherto in Britain having relied on questionnaires. There were also difficulties forseen in stating viable hypotheses, based upon what was already known about non-reading and semi-literate adults and pursuing them to the end of an exploratory study.

The ensuing research was exploratory in two ways. The first was concerned with information which was required about subjects, and the second had to do with the possible methods of obtaining it. As it later turned out, the final analysis technique was exploratory in nature too. From the two initial exploratory strands, much was learned along the way and the initial hypotheses were added to, modified, changed and some perforce discarded. Entering this relatively uncharted area posed the additional problem of a choice of directions to follow.

There were three initial practical difficulties facing the Researcher, therefore; one was a general lack of literature related to adult reading disability, which could be used for reference, another was obtaining a sample of adults to observe (the Researcher worked for some time with the literacy scheme to gain trust and experience prior to beginning), and the third was the choosing of a suitable method of selecting and grading for difficulty, authentic texts designed for adults.

2. Literature

At the time this study was begun research into adult literacy among native speakers of English had been published in four countries: the United States of America, Great Britain, Canada and Australia. Much of the available information, especially that published in Britain, was empirical in nature, providing statistical details about the distribution of illiteracy in the population, information about the social background and problems of illiterate adults and evaluations of literacy projects both experimental and long-term.

In the United States, alongside material of the sort described above, some more detailed research into the nature of illiteracy in adults together with some interesting theories about its relationship to linguistic and psychological development was

beginning to emerge. In addition to this, concern was being expressed about the criteria against which levels of literacy in adults are commonly measured. Doubts were expressed about the readability of textual material upon which current teaching methods were based.

This research, although fragmentary, indicated some major problems, apart from overtly economic ones, inherent in adult illiteracy and attempts to eradicate it. It was thought that information from research of this nature, viewed in conjunction with what was already known about skilled readers and the acquisition of reading skills by children, could be used as a basis and background for an investigation into the nature of specific reading difficulties in adults with a view to filling some of the existing large gaps in knowledge and coming closer to effective methods of remediation.

The main literature review examines the area of adult reading difficulty in the light of what was known in general about reading success and failure in adults and children, the psycholinguistic nature of the reading process and what was known about adult illiterates at the time the study was begun.

The lack of literature reporting observational research in this field meant that the Researcher was forced to rely upon reports from research in other related areas, as a guide to the direction of her investigative activity. It also meant that the study was largely exploratory, although certain hypotheses could be suggested. Adult literacy workers used the available literature in much the same way, and modified child-based teaching methods for use with adults, according to general sociological, often 'political', opinion about the causes of inadequate reading skills in adults.

PART II. AIMS.

The main objects of the research were as follows:-

Two main aims -

1. to come to a better understanding of the reading problems of adults;

2. to classify both adults and their reading strategies in order to make a contribution to future teaching methods;

and a subsiduary aim -

3. to compare the adults to children in order to gain access to and make use of the understanding there is of children's reading strategies and their developmental stages.

To begin with it was supposed that although certain differences would exist between the strategies and procedures used by children when learning to read and those of adults, linked among other things to learning experience and to attitudes to learning, there would be strong similarities in the kinds of errors they made; the adults' difficulties being, it was thought, a continuation of those they experienced when younger.

It was felt that adults might have better developed oral language skills than the children, which would help them with reading. Children had in the past been seen to use only those words already encountered in text as errors. It was expected that adult errors would be more varied. There would be other differences based for instance, upon the adults' poor self-concept and accompanying sense of failure which might also influence their behaviour.

Information was therefore sought about a subject's approach to printed text as a whole, to individual items of vocabulary, to words in context, his ability to predict, to use clues from the text and his ability to comprehend at both the vocabulary and wider contextual levels together with his methods of dealing with any difficulties encountered while reading.

Information was also sought with regard to how far difficulty in reading a passage orally might affect comprehension; in other words, the measurement of the extraction of meaning from a passage as opposed to the simple ability to reproduce it word by word.

When the study was begun, there was very little available information about adults learning to read, or whether they progressed through stages similar to those passed through by children. It was hoped that data obtained from such a study of adults might add to current knowledge in this respect too.

It was decided therefore, to pay attention in the study to some areas, among others, already investigated by the researcher using error analysis with children, bearing in mind the skills common to competent readers and for which it was assumes adult literacy students would be aiming. For example, information in the previous study had been gathered about the children's ability to make accurate syntactic and semantic predictions. In this study, the area of analysis was broadened to include graphophonemic accuracy and the production of nonword errors.

Further to this, consideration was given to the possibility of getting an indication of the verbal capabilities and short term memories of the subjects, competencies which were considered to relate closely to the reading process and to reflect any potential for learning the necessary skills.

It was suspected that accurate oral reading might not necessarily be positively correlated with comprehension and that comprehension might be possible without attention being given to textual detail, making redundant at best and counterproductive at worst attempts by teachers to focus on graphophonemic skills and word recognition.

It was believed by the Researcher that reading involved linguistic skills coupled with the ability to hold text in the memory at least for the duration of a short given passage. Even at the most basic level it was felt that memory would be vital for comprehension. It was thought therefore that poor short term memory or at least the inefficient use of memorising skills could be responsible in part for slow and inefficient progress at reading.

Various studies had emphasised the importance of contextualisation in the reading process, in particular those of Goodman, and advocated a move away from the teaching of words and letters in isolation. It was thought worthwhile therefore to study the attention given to meaning in the reading process by the subjects observed, by a variety of means.

PART III. METHODOLOGY

1. Sample.

The initial aim was to use three separate adult samples: illiterate and semi-literate adults, literate adults from a similar socio-economic background and children. It was intended to make comparisons between oral reading errors and comprehension of adults and children with reading difficulties using language and memory based scales from an intelligence test as an added dimension. The main sample, of adults with reading problems, was chosen from among people enrolled for tuition in a local authority literacy scheme. It was realised that they might not be fully representative of the adult non-reading population as a whole, but they were certainly the most accessible sample of the kind required. Nonetheless contact with them was conditional on the design and use of materials and observational methods.

Twelve year old children were selected from the remedial department of a local secondary school as being the youngest subjects for whom the adult content of the reading material would be appropriate. These children were observed with the whole of the material used with the adults.

2. Grading Texts for Difficulty.

Reading material was used which would be of general interest to adults. A readability formula was modified and used as a means of grading the texts, bearing in mind that it was a child oriented measure.

3. Data Collection.

The methods of data collection took account of the sociological nature of the sample and for this reason were as naturalistic and flexible as possible, based upon techniques commonly used to collect sociological data. Full account was taken of the potential nervousness and inhibition of adult subjects highlighted in the literature.

Later studies developing along these lines have been specifically ethnographic in nature and this methodology, while not 'ethnographic' as such followed a very similar rationale. A

quantity of sociological observational data was collected alongside the more quantitative data described in the thesis with a view to contextualising the study but also in order to provide confirmation or otherwise of generalisations then current in the literature. This information was used to assist in the interpretation of the qualitative findings rather than being the main focus of the study.

The study remained exploratory throughout. Some of the findings have been extremely interesting, although in addition to verifying, or not, related research, they leave many questions still to be answered.

CHAPTER 2. REVIEW OF LITERATURE 1. GENERAL BACKGROUND TO ILLITERACY AND STUDIES OF READING AS A PROCESS.

INTRODUCTION.

When this study was begun, amid a general upsurge of interest in adult literacy inspired by an almost political 'Right to Read' campaign which was taken up and fueled by the media, very little close observation of illiterate and semi-literate adults had taken place. Much of the directly relevant literature which was available was general in nature and tended to be based on sociological and survey data. What observational research there was had been published in America; there was little of it. So that in seeking to draw on and make use of literature and relevant research as a basis for a useful exploratory study, quite a wide range of reading related information was used, some of it bordering on the peripheral. Boundaries between what was directly relevant or otherwise were sometimes not clear cut.

Guides were sought for instance, to adult reading levels and how to measure them, what could be regarded as reading difficulty and methods of measuring and observing reading progress and strategies. Most of the studies directly relevant in nature, focussed on inappropriate samples; for instance young children and competent adults. Relevant information was therefore gleaned from quite a wide corpus of existing linguistic, psychological, sociological and educational literature. The following review is a reflection of that. Section I deals with the sociological background to adult illiteracy as it was viewed when the study was begun, with reference also to recommended approaches to the solution of the problem including teaching methods. Section II deals with results of research in linguistics, psychology and education which illuminate areas of special interest to a study of adult reading difficulties albeit in somewhat general terms.

There is still now, on presentation of the results of this research, relatively little information available having a direct bearing on adult reading difficulties and the potential for overcoming them. Such studies which have been published are described at the end of the relevant sections in this and the following Chapter (Chapter 3).

SECTION I. SOCIOLOGICAL, STATISTICAL AND EDUCATIONAL BACKGROUND.

PART I. Illiteracy as a Phenomenon.

1. Definitions of Literacy.

When embarking on a survey of literature connected to adult reading problems, it was felt necessary to examine the terms most commonly used to describe adults with varying degrees of reading and writing disability and the criteria by which they have been determined. If an adult is termed illiterate the implication is that he or she is unable to read or write. However, there are relatively few adults in western society who having completed their formal education are completely unfamiliar with the written or printed word. Various terms have been used to describe different levels of disability, the three commonest being 'illiterate', 'semi-literate' and 'functionally illiterate'. All are open to wide interpretation based on the varying criteria by which adult reading ability is generally measured. Kamm (1967) taking as her points of reference the definitions of Burt (1945) and UNESCO (1965) suggested that an adult who has a reading age of less than 6.5 years should be termed illiterate and with a reading age of 6.5 - 9 years, semi-literate. A later UNESCO report (1969), referred to by Risman (1975), used the term semi-literate to describe an adult with a reading age of between 7 and 13 years and gave the 13 year old level as a measure of functional literacy. According to Risman an illiterate adult may recognise most letters but be unsure of related sounds and be unable to recognise more than a few related words. Someone who is semi-literate reads hesitantly and is unable to maintain their standard without practice. One solution might be to replace

illiterate and semi-literate with the term 'adult non-reader' (Haviland, 1973) but this too could be misinterpreted.

The most readily available guides to reading ability are still 'reading age', the reading standard of an average child of certain age (in Britain) and 'grade level', the number of years spent in school (in America). Performance in standardised reading tests and the ability to function in everyday situations are also used as measures of literacy. All except the last have been critcised as ways of measuring the ability of adults, having until recently been designed for use specifically with children. Even using such means of assessment however inadequate, opinions differ as to the levels at which people might be said to be illiterate; and this lack of standardisation too has been criticised (Rosenkrantz, 1975).

Rosenkrantz described an illiterate person as one who "is unable to read and write in any language", although the American standard most commonly used as a measure of illiteracy is the "level of attainment which is reached by the average child in the United States at the beginning of the 4th grade" (National Centre for Health Statistics, 1976).

The more recent and more general concept of 'functional literacy' has prompted attempts to find reliable and more realistic criteria against which to measure adult reading achievements. There is, however, still disagreement about the level and the meaning of adult 'functional literacy'. Most writers seem to agree that for an adult to be functionally literate is for him to be capable of living a normal life within his own society (UNESCO, 1969; Hillerich, 1976). It has been recognised however, that literacy requirements vary both between and within societies (Harman 1975, National Centre for Health Statistics, 1976), and the need for a clearly defined delineation of adult reading requisites, emphasised (Harman, 1970). Harman suggested that material commonly required to be read by adults should be analysed to give a "precise definition of adult reading level, to become the aim of instruction". Surveys were carried out to determine what literature adults are regularly required to

read or enjoy reading. It was found that most of their reading time is spent on newspapers, magazines, books and job related material and that reading most often occurs in the context of other activities (Sharon, 1972). In addition to this, the importance of people being able to read price, weight and size information, street and traffic signs and the main news in a newspaper was emphasised (Murphy, 1975).

With the above definition of functional literacy in mind, together with a picture of what competent adults are required to read in western society, efforts were made over a period of time to assess the incidence of functional illiteracy, based on the degree to which samples of adults are able to perform common literacy related tasks. As a result the term 'functionally illiterate' was applied to a wide range of reading disability including people enrolling in literacy classes who could not read a simple newspaper (Brennan, 1971), in-school 17 years olds who could read school related material but not application forms and traffic tickets (Gadway and Wilson, 1974) and adults who although physically capable of reading and writing were unable to fill in official forms, interpret advertisements or order from menus (Northcutt, 1975).

Several attempts were made to establish specific levels of functional literacy based on the literacy capability of most adults, a spectrum of ability being a more popular concept than a set point below which a person is 'illiterate'. A 'range of literacy' from 'low survival threshold' to 'marginal survival level', based on the ability to fill in application forms for social security, bank loans, public assistance and drivers' licenses (Harris and Associates, 1970; 1971) or the possibility of measuring literacy against a continuum and determining 'needs discrepancy' (Hillerich, 1976), were suggested as was a two dimensional model, aligning proficiency on a variety of literacy related skills along one axis and common experience areas along the other (Stock, 1975). However, standardisation along these lines has been difficult to achieve.

2. The Incidence of Illiteracy.

When the present study began, three English speaking countries other than Britain admitted to varying amounts of illiteracy among their adult populations. These were the United States of America, Australia and Canada. Much of the literature reviewed in the following section originated there. While it was recognised that the importation of figures from one situation to another, in particular from the United States to Britain, might be misleading (Risman, 1975), it was felt that an examination of the figures for illiteracy, especially in the USA, alongside those of Britain would provide a useful background against which to examine other research in the area.

2.1. Britain.

Between 1945 and 1972 reports on the trends of illiteracy among adults in the population were said to be favourable. In 1945, Burt suggested that there were two to three - hundred - thousand illiterates and three million semi-literates. A Ministry of Education survey published in 1957 and based on test results of 11 and 15 year old children suggested that standards had improved between 1948 and 1952 and again in 1956. In 1956, according to the survey, the percentage of illiterate 15 years old when tested by the Watts-Vernon Test, had dropped to zero. Newsome (1963) suggested that standards were improving but that greater competence was still needed. In 1966 the Department of Education and Science published Progress in Reading 1948 - 1964, a continuation of the survey begun in 1948 in which it was stated that the percentage of children in the illiterate and semi-literate categories had gone down. There was said to be 0% illiteracy among 11 year olds, a drop from 10% in 1956, and progress among 15 years olds. The final survey in the series, however, said that between 1970 and 1971 "the data from the present survey seems to indicate that standards have not risen since 1964 and in one case have declined since the last survey was carried out" (Start and Wells, 1972). Illiteracy among 11 year olds had risen from 0% in 1964 to 0.42% in 1970 and semi-literacy

in the same group from 13% to 15%. Although illiteracy among 15 year olds remained at 0%, semi-literacy rose from 0% in 1961 to 3.19% in 1971. The report suggested also that the number of adult non-readers was increasing. All these figures were included in a 'Survey of Provision for Adult Illiteracy in England' (Haviland, 1973).

Haviland estimated from these figures that there were several million illiterate people in England and Wales, suggesting a tentative minimum of 5% of the adult population needing assistance with reading and writing. Clyne (1973) too, discussing disadvantaged adults, suggested that more than a million people were deficient in their basic education. In their 1974 pamphlet 'A Right to Read', part of a campaign to draw attention to the problem of illiteracy in Britain, The British Association of Settlements said that at least 0.5% of the adult population was completely illiterate and at least 2.5% semi-literate. "These figures", it was said, "suggest at least a million adults with reading ages lower than that of the average nine year old child" and many more with reading ages of less than thirteen years, the UNESCO definition of literacy. Finally, Risman (1975), in the BBC Adult Literacy Handbook, confirming the above percentages said that the most conservative estimates for adults at the lowest levels of literacy in England and Wales was 160,000 and that in addition there were millions of people with inadequate skills.

The above estimates of the incidence of illiteracy among adults in England (those for Wales are assumed and so one might imagine were those for Scotland) were based therefore largely upon extrapolations from numbers of illiterate and semi-literate schoolchildren in the twenty-four years between 1948 and 1972. Added to these figures were estimates based on the number of people who left school before the surveys began and the knowledge that literacy skills atrophy if they are not used (Harman, 1975). It might well be that the numbers of illiterate and semi-literate adults in the population have varied little since the first government surveys were begun in 1948 but that the widespread concern for illiteracy at the time of this study simply brought them into focus.

2.2. United States of America.

As with Britain, it is difficult to be sure of the exact extent of adult illiteracy in the United States. Estimates and definitions of illiteracy vary and the inclusion in the figures of people whose native language is not English has not always been stated. However the figures do appear to be large.

Census figures in 1960 indicated that 11% of the population was functionally illiterate (Berg, 1960). Contained in this percentage were four million native born-whites, three million negroes and three million foreign-born whites. Berg referred to other estimates which put the percentage nearer to 15% and he forecast that by 1970 fifteen million Americans would be technologically unemployable because of illiteracy.

A survey of 25,067 adults (Sharon, 1972) suggested that 5% of all adults in the United States could not read at all in the English language but that the extent of functional illiteracy might well be higher than that percentage showed. A later survey (Northcutt, 1975) confirmed this impression. Other estimates put the figures at between eighteen and twenty five million (Holloway, 1973), ten and thirty million depending on the definition used for functional literacy (Hall and Coley, 1975) and 22% of the population (Harman, 1975). Rosenkrantz (1975) pointed to more than one million Americans who were unable to read or write in any language and said that in addition, nearly 5% of all youths between the ages of twelve and seventeen could not read at the fourth grade level.

3. Causes of Illiteracy.

According to most authorities when this study was begun illiteracy was seen to be the result of a combination of factors in the home, the school and the individual. Within the home, physical conditions (Ministry of Education, 1950), parental indifference (Ministry of Education, 1957; NARE, 1972), general cultural deprivation coupled with the lack of a stable linguistically capable background (Maher, 1972; Risman, 1975) and parents who do not or cannot read (Harman, 1975) were all thought to contribute to reading difficulties.

Circumstances in schools were said to play an important part too and large classes, interrupted schooling, staff changes and lack of individual attention were all listed as being causes of illiteracy by the Ministry of Education in 1950. In addition to these factors, inadequate teaching and truancy were widely blamed (Moran, 1970; NARE, 1972; Risman, 1975). Finally, among the individual characteristics said to account for the failure of some people to acquire literacy skills were emotional instability (NARE, 1972), inefficient study habits, nervousness and emotional factors (Schubert, 1953), unsuccessful learning, poor eyesight and hearing or unstable temperament (Risman; 1975). It was pointed out however that many of these characteristics could occur as the result of unsuccessful attempts at learning equally as well as being causes (Schubert, 1953).

There was in the above mentioned literature, much of it current at this study's inception, an absence of discussion about the fact that notwithstanding many of these difficulties a large number of people learn to read successfully and suggestions that innate incapacity might be a contributary factor in some people were treated with anger and scorn. There has been a habitual reluctance on the part of those concerned with adult illiteracy, especially in Britain, to examine the causes in terms of psychological deficit. Instead, social circumstances and physical defects have most often been blamed. Not unexpectedly then, the most controversial reasons put forward for adult illiteracy were lack of ability or intelligence. One conclusion of the NARE (1972) survey was that reading ability was linked to intelligence in roughly 50% of the people surveyed. Haviland (1973) having surveyed several studies of the causes of reading failure in England concluded that the " causes are multiple and .... low intellectual ability is a common factor found in adults who are illiterate or semi-literate". These findings were criticised on the grounds that they were based on "subjective guesses by tutors who had no common criteria of evaluation of intelligence and no common mode for testing reading difficulty" (Risman, 1975). The Department of Education and Science supports this view: "There is

a covert and seldom expressed view that such adults are lacking in intelligence or are lazy. Adult literacy coordinating tutors are clear that there is no correlation between intelligence and inadequate literacy skills" (Department of Education and Science, 1976). The force of these statements was no doubt due to a desire to counteract social prejudice against illiteracy and to dispel an important aspect of the stigma attached to the inability to read and write.

The results of a survey of under- and over-achievement in reading (Yule, Rutter, Berger and Thomson, 1974) lent a small amount of support to the view that lack of intelligence is not the only factor behind illiteracy in every case by indicating that reading achievement does not parallel IQ at every level of intelligence. It was found for instance in the survey, that many more children had specific reading difficulties than could be explained in terms of the bottom of a continuum. In addition, a longitudinal study where children's reading ability and vocabulary were tested in grades one to seven and again in grades nine to eleven (Hopkins and Bracht, 1971) showed that early performance in reading gave a good indication of later achievement. This being so, a similar distribution of reading achievement in relation to intelligence, to that among children, might be expected to occur in the adult population. With intelligence tests designed for children or literate adults being inappropriate for use with illiterate adults and the lack of a reliable objective test of innate or potential ability in people who cannot read the temptation to make subjective judgements is clear. In the absence of childhood records for illiterate adults however, it was felt by the Researcher, that all statements about the intelligence of individuals in this situation whether favourable or otherwise were open to question.

PART II. Tuition Facilities.

1. Provision for Literacy Tuition.

1.1. Britain.

'A Survey of Provision for Adult Illiterates in England and Wales'

(National Association for Remedial Education, 1969) found 199 evening institutes and centres run by voluntary organisations, making regular provision. There were at that time 4,137 pupils, including 1,372 immigrants, and 352 teaching staff.

Haviland (1973) found that the number of adult literacy programmes in England had grown from less than 10 in 1950 to more than 217 in 1973. From 1965 to 1967 there were at least ten new projects started every year, a figure which more than doubled in 1968-9. Between 1970 and the publication of the report 78 more programmes had begun, representing 36% of the programmes surveyed. This increase may have been due to the Right to Read campaign of the British Association of Settlements (Bentovim, 1974). Fifty eight percent of the programmes in Haviland's survey employed only one or two tutors. Five of the programmes between them used more than 50% of the tutors in England teaching literacy skills to adults. The five programmes were Cambridge House Literacy Scheme, Manchester and Salford Council of Social Services Literacy Project, University Settlement Literacy Scheme, Liverpool, Adult Literacy Scheme (Birmingham Settlement) and Bristol (Community Relations Council) Maths and Literacy Scheme. Most of these schemes used tutors on a one to one tuition basis and Haviland estimated that in 1972 "at least 5,172 adults were receiving instruction in basic literacy".

When this study was begun in 1976, the most up-to-date information about literacy provision in Britain was to be found in the Department of Education and Science Report on Adult Literacy Progress 1975-6 (Department of Education and Science, 1976). Since the publication of Haviland's (1973) report there had been a great expansion in literacy provision in Britain, largely due to a grant from the Department of Education and Science of one million pounds for the financial year 1975-6 "to help local authorities and voluntary organisations tackle the problem of adult illiteracy"; £100,000 of this was allocated by the Scottish Education Department. The Adult Literacy Resource Agency was established under the aegis of the National Institute of Adult Education, to administer the grant. At the same time the BBC

launched a project whose aim was to bring about a greater awareness on the part of adults with literacy problems of existing provision and to assist with the recruitment of volunteers. By January 1976 there were 55,425 students receiving literacy tuition in the United Kingdom; 49,522 in England and Wales and 2,903 in Scotland (excluding 3,000 being taught in penal establishments). In March 1976 there were 2,373 paid full and part-time tutors and 44,253 volunteer tutors in schemes organised by local authorities and voluntary bodies. The management committee of the Resource Agency submitted a report to the Secretary of State for Education and Science in September 1975 as a result of which the government undertook to renew the grant for the years 1976-7 and 1977-8 and to establish a separate agency for Scotland which was set up in 1976. This Agency, The Scottish Adult Literacy Agency (SCALA) worked with the BBC, the telephone referral service, voluntary organisations and Education Authorities. In 1979 it became The Scottish Adult Literacy Unit (SCALU). In Scotland between 1975 and 1979, 11,883 literacy students were processed by Regional Authorities and voluntary organisations, and at March 1979 4,080 tutors (both paid and unpaid) were available, 4,264 students were under tuition and 505 awaiting tuition (Scottish Education Department, 1980).

Published information about individual schemes in Britain at the time was sparse. What there was illustrated the different approaches to literacy tuition which existed in different areas. The earliest literacy scheme about which any detailed information was published was the London, Cambridge House scheme, started in 1963 (Kamm, 1968). The volunteer tutors taught one evening a week, either in their pupils' home or their own. The scheme in 1968 had 18 trained primary and 33 secondary teachers out of a total of 133 volunteers. This scheme appears to have set a pattern for others to follow.

The information about the Cambridge House scheme like information about other projects was published in the journal Adult Education. Other articles included a short term research project on Aspects of Staffing and Staff Development in Adult

Literacy (Anon., 1974), based on a Lancashire scheme, and descriptions of five literacy schemes in Liverpool, Bradford, Cambridge, Waltham Forest and Londonderry (Anon., 1975a). The results of the research project were not included in the article. Information about the five schemes was mainly concerned with teaching methods, the most interesting of which was the use of Paulo Friere's system of socially charged words by the University of Ulster, Londonderry.

1.2. United States of America.

In an account of the development of literacy provision in the United States, given by Brown and Newman (1972) it was said that literacy problems had been recognised as early as 1924. At that time a national conference about illiteracy had been called by the General Federation of Women's Clubs, the American Legion, The National Education Association and the US bureau of Education, but no action had been taken. However, according to the account, official concern for illiteracy began in the early 1960s. Brown and Newman refer to a summary by Schaffer (1963) of the concern felt by the goverment for the needs of adult illiterates, on economic grounds, since a high incidence of illiteracy affected levels of unemployment. Subsequently a series of Congressional Acts was passed including the 1964 Economic Opportunity Act and the 1966 Elementary and Secondary Education Act, aimed at expansion of the number of Adult Basic Education Classes and by 1974 there were 849,529 adults enrolled in federally funded classes (Rosenkrantz, 1975).

Literacy classes were centred on the provision of Adult Basic Education. The Right to Read Campaign (Holloway, 1975) was begun in 1973 with the aim of eradicating illiteracy by 1980. Two hundred and forty four Right to Read projects had been started in 1975 all over the country, some in schools and some in community centres. There was an emphasis on diversity of provision but it is not clear whether these classes were based upon existing Basic Education Provision or separate. Each centre was expected to reach 500 people every year. School Districts were asked to

accept technical assistance from the central Right to Read organisation and specialists were said to visit projects to inspect the use being made of grants. Although the campaign was a national one there was an emphasis on the development of staff locally, according to area needs.

In a review of Adult Basic Education programmes in California, Illinois, North Carolina, Texas and Virginia it was said that the literacy programmes in these states reached only a small fraction of those needing help (Comptroller General of the USA, 1975). Moreover during the first nine years of the programmes the 4.6 million adults who enrolled represented only 1% of the estimated 57 million in the target population.

There was a plethora of experimental literacy projects in the United States in the 1960s, several of which are reviewed in papers by Brown and Newman (1972) and Otto (1972). These are of interest because they sought to provide literacy tuition of various kinds while fulfilling specific research objectives. They include the experimental tuition of unemployed adults (Alesi and McDonald, 1964; Brooks, 1964; Patten and Clark, 1968), the tuition of adults in an industrial setting (Ball, 1967), the use and evaluation of the initial teaching alphabet with adult illiterates (Clark, 1965; Heding, 1967; Brown and Newman, 1968), the evaluation of group and one to one tuition (Krebs, 1966) and the evaluation of Adult Basic Education materials (Greenleigh and Associates, 1966). There are no reports of similar projects having taken place in Britain. This may reflect a difference in attitude to adult illiterates and illiteracy between Britain and America.

2. Characteristics of Adults Attending Literacy Tuition in Britain.

2.1. Personal Characteristics.

Much of what is known about adult illiterates in western countries has been gained from observations and analyses of the characteristics of those seeking tuition in reading and writing. There were two kinds of information present in the literature

reviewed; specific details from surveys and observational studies of people who had received or were in the process of receiving tuition, and generalisations about illiterate adults based partly on the results of such surveys and studies and partly on more subjective evidence.

The point was made that those who sought help with literacy skills were not representative of those who needed it most and that information gained from samples of people in this situation would probably be affected by the initiative which set them apart from those who did not seek help (O'Neill, 1975; Manzo, 1975). Bearing this in mind, while no doubt many of the generalisations made about adult non-readers were valid, in some there appeared to be a bias, due to the limited nature of available samples, together sometimes with a strong element of personal opinion.

2.2. Statistical Information

Until the time of this research most of the available statistical information about adults attending literacy schemes in Britain came from the published results of a survey by the National Association for Remedial Education (1972) of the 'Needs and Characteristics of 1,126 Adult Illiterates Attending Reading Classes in England and Wales'. This was been partly superceded by the DES Report on Literacy Progress 1975/6, but many of the figures contained therein remained the only ones available for certain characteristics, although some, notably those referring to intelligence, were challenged obliquely in the 1975/76 DES report and more directly elsewhere. Other relevant figures were provided in a report by Moran (1970) of a study of the Royal Army Educational Corps. Haviland (1973) referred to the NARE survey in some detail as complementary to his survey of provision for illiteracy and Risman (1975) in her chapter in the BBC Adult Literacy Handbook about the Characteristics and Causes of Illiteracy drew together most of the available information about people attending literacy tuition at the time, presenting it in an easily assimilable form for the benefit of would-be tutors and others. What she said was significant in view of the wide

circulation of the BBC Handbook among those currently involved in literacy tuition at the time.

The NARE survey (1972) covered 119 evening institutes and centres run by voluntary organisations. It included 4,137 pupils of whom 1,372 were immigrants. Fifty percent of those attending classes were aged between 15 and 20 years. Adults over the age of 50 made up 20% of the total. The report put stress on the greater likelihood of young people seeking help rather than older and of these being men rather than women. It gave the ratio of men to women as 4:1. The reasons given for the greater number of young people were the large numbers leaving school with inadequate levels of literacy and the weight in the figures of returns from borstals. Risman (1975) was very critical of what she interpreted as the suggestion that "illiteracy is a problem of the young" since, as she pointed out, "45% of the sample was aged between 15 and 20 years and 32% of the returns came from penal establishments". Outside the 15-20 age group, women made up 20-30% of the total number of students.

The report also pointed to a tendency of illiterate adults in the sample to marry late, suggesting immaturity and insecurity as reasons. Much of the information was obtained by means of questionnaire including teachers' opinions about the intelligence of their pupils. The report concluded that 50% of the students attending classes were of low intelligence and that half the known illiterates were of average intelligence or above. Care was taken to emphasise the subjective nature of the assessments. Again, Risman was strongly critical of the conclusion that low intelligence is linked significantly with reading ability in '45% of men and 54% of women.

Further to the above points the NARE survey (1969) found a higher proportion of intelligent people among non-readers in older age groups. The reason suggested for this was that as an intelligent person grows older he will exhibit greater aspirations than someone less intelligent. It was also found that unemployment among literacy students was three times that of the national average at 12%. Occupations among the more intelligent

students varied from skilled factory work to labouring, whereas those who were less intelligent were confined to labouring. Conversational and expressive abilities were found to be greater among women than among men. Two thirds of the sample were considered to have normal or superior powers of expression and the report emphasises the 'normal' potential of most adult non-readers in contrast with the unskilled work or unemployment that 60% were subject to. It should be noted that if the assessments of intelligence contained in the report had been truly invalid as was suggested, the foregoing proportions of other attributes in relation to intelligence, such as age and occupation, would similarly be open to question.

Apart from the teachers' assessments of intelligence levels, included in the returns were records of students attainments on admission to class. These were based on the results of standardised reading tests which, although their appropriateness for this purpose is in doubt, gave an indication of standards which can be compared with those from other studies. Fifty-six percent of those admitted to class had a reading age of 7 years or less. This meant that they were unable to read a newspaper or write a note. Thirty percent had reading ages of between 9 and 10-11 years and mainly experienced difficulty with spelling. The survey concluded that although there was a close relationship between assessed intelligence and reading ability on admission to class there was no reason to assume that less intelligent people could not improve their reading standards.

Moran (1970) identified 50% of the students in his sample as being from large families, suffering from overcrowding and undernourishment, and 35% from broken homes. The majority had emotional dificulties, 30% had a history of interrupted education through changes of school or truancy and 50% had "been in trouble with the police while they were civilians". According to Moran the educational problems in his sample were mainly concerned with backwardness in reading, comprehension and spelling, the average reading age on on arrival in the army being 10 years and 3 months. In addition he states that 45% had an intelligence quotient of

less than 80 and only 6% of 100 and above. He implied a definite relationship between intelligence and the ability to read which as in the case of the NARE survey is difficult to substantiate or otherwise. In this instance however the possible bias inherrent in the sample, being all male and all army recruits is worthy of note.

Risman divided illiterate adults into three age groups: young adults straight from school, who in general are not inclined to seek help; the family group aged between 25 and 40 who find the motivation to seek literacy tuition through a wish either for job advancement (the men) or to help their children (the women) and the '40-50 age group' where motivation is still strong. After the age of 50 she suggested, the desire to learn declines and people are influenced by the fear of being too old to learn. Risman pointed to the number of students who suffer from nervous disorders such as asthma, stomach nerves and dermatitis, to the common lack of interest on the part of the parents, the high incidence of parental or sibling illiteracy and to large family size. In this instance she referred to a study by Wall (1945) on the Army School of Preliminary Education which showed that 50% of the intake were from families of four or more children. She suggested that students who came forward for tuition were often from the lower middle class who had hitherto used their intelligence to hide their illiteracy. If this were to be widely the case and social class were an important factor among people seeking tuition then weight would be lent to criticism of generalisations based on data from existing literacy schemes, which embody assumptions about adult non-readers in general.

The list of common occupations of illiterate adults given by Risman was confined to manual occupations or those where reading and writing were unnecessary. She diverged sharply from the NARE survey with her statement that there were very few unemployed people among those seeking tuition, in accord with her emphasis upon the desire for job advancement as a major motivator to those seeking help. Although most of Risman's points about personal characteristics accord well with evidence provided elsewhere,

the main faults in her account as a factual record of characteristics of illiterate adults seeking tuition are her failure to include specific figures and the absence of a complete list of her sources of information.

The most recent available information about adult non-readers enrolling in literacy schemes when this study began was to be found in the DES Report on Progress in Adult Literacy 1975-6. In March 1976 a questionnaire was circulated to the recipients of grants for literacy provision throughout the UK. The survey covered 6,600 students of which 64.5% were men and 35.5% women. 57.6% of the men and 64.8% of the women were between the ages of 21 and 40. Two thirds were married and the majority had left school at 16 or less. Seventeen percent of the men were unemployed. The majority, 3,140 were self-referred for tuition, the remainder being divided between those who were referred by their spouses or social agencies. More than 50% could recognise their own addresses and the letters of the alphabet but well under half could recognise the sounds of letters. Fifty percent could read signs, fewer could read street signs and even fewer could recognise single letters. There were references included in the returns to nervousness and lack of confidence on the part of students and to personality problems, hearing or sight deficiencies.

2.3. Generalisations.

There has been general agreement among those concerned with adult illiteracy about subjects like the personality problems and employment situation of adult non-readers. There has been less accord with regard to language and communication skills and the relation between language skills and intelligence (see Causes of Illiteracy, Part 1.3). It has already been suggested that although most generalisations of this nature appear to be based upon the personal experience of commentators, perhaps because of the close personal involvement concerned, many comments may not be entirely objective.

The feelings of inferiority experienced by adults who cannot read and write in a literate society have been well documented both in Britain and elsewhere. It was said that illiterate adults suffer from a sense of failure (Moran, 1970) and embarrassment at their lack of ability (Droege, 1970; Anon., 1975a) and that they go to great lengths to hide their deficiencies (Kamm, 1967; Risman, 1975). Kamm, Moran and Risman have all discussed at length the frequent changes of job made by illiterates, Risman paying particular attention to the difficulty of admitting reading failure to colleagues and employers and pointing to a close relationship between literacy skills and 'job potential'. With reference to the latter point, Droege (1970) when making a study of test procedures used with adult non-readers selected his sample from people who were registered at an employment exchange. Further to this Risman (1975) suggested a direct correlation between reading difficulties and personality disorders, resulting in nervous stress. She emphasised the importance of the relationship between tutors and adult students in the early stages of learning to read.

Bearing their inhibitions and inferior position in society in mind, it was also stated that many illiterate adults lack the persistence needed to overcome their handicap (Kamm, 1967) and are easily discouraged (Droege, 1970). These comments could be explained in part by Sticht's (1976) theory that students who are unable to perform information processing tasks avoid learning situations in general. This, if it were true, could account for many reported observations of adult non-readers in learning situations, especially those concerned with nervousness and fragility.

Manzo (1975) in a report of a study of the personality characteristics of Adult Basic Education students suggested that any apparent fragility on their part was related to their insecurity. He pointed to a lack of supportive feelings in society at large and suggested the need for firm teaching and direction. By way of contrast however, in the light of what others reported, he found in his study that the students were

aggressive, intense and task oriented. He attributed these manifestations to newly heightened aspirations, setting them against the resignation of those people who do not seek tuition.

In other areas too apparently contradictory observations were reported. Moran (1970) said that illiterate adults made little constructive use of their leisure time and found planning for the future difficult, implying that this set them apart from normal people. The general picture of fecklessness that he drew contrasts sharply with Risman's emphasis on their initiative and resourcefulness which she said were used not only to hide illiteracy but to find compensatory strengths. Sharon (1972) agreed with Risman that reading did not necessarily influence socio-economic status, Risman maintaining that many non-readers are members of the 'lower middle class' who have developed superior oral skills in place of literacy. In this she was at odds with Moran's picture of people from an impoverished background with inadequate language skills. It is a short step from disagreements like these to the major contentious issue of whether or not literacy is related to intelligence. The Department of Education and Science (1976) stated that: "adults with reading and writing difficulties are ordinary industrious men and women who for a complex array of reasons have missed out on literacy skills as others have bypassed the creative arts and other skills. To establish these views statistically is however, another matter."

Interestingly Howatt (1977) in his survey of adult literacy in Strathclyde pointed to the existence of 'at least two distinct populations. On the one hand there is the majority group of <u>under achievers</u> (his emphasis), i.e. those who could have learnt...at school but who for...circumstantial reasons did not. . .,and...there is the minority...<u>low achievers</u> who...lacked the intellectual strength...'. He concluded that adult literacy work needed 'to take account of this variation and specialisation'. In the SCALA report to the Secretary of State for Scotland (Scottish Education Department, 1980) mention was made also of competent

readers seeking help with writing and spelling and also of provision being made for mentally handicapped students and non-readers from ethnic minority groups.

That adults who are unable to read and write are stigmatised, if not by society then certainly in their own minds is clear. Also apparent is the need felt by those concerned with adult illiterates to redress the balance by providing information to counter commonly held assumptions about illiteracy in adults. This was particularly true in the 1970s when the newly launched adult literacy initiative was in progress. In doing so however, statements were made which are as difficult to substantiate as those they sought to oppose, especially those which dealt with social class and intellectual ability. There remains no way of telling how far what is assumed by some to be lack of intelligence in adult illiterates is an innate developmental incapacity or a lack of knowledge and development resulting from not having learned to read. There was also at the time of this review little evidence to suggest that such difficulties were remediable.

PART III. Pedagogy.

1.Teaching Methods.

There has long been a large quantity of literature recommending and describing methods by which to teach reading to children. However, there arose a feeling amongst adult educators, especially in America during the late 1960s (Brown and Newman, 1972), that such methods because of their child orientation, were inappropriate for teaching adults to read (Cox, 1976). They rightly stressed the differences in an adult's approach to learning from that of a child. Otto (1972) pointed to the different characteristics and expectations of adults from children and their varying degrees of exposure to reading instruction. He emphasised however that the skills to be acquired were the same for both adults and children and suggested that sequences which had been developed for use with children should be adapted for use with adults. Kamm (1967), in describing the Cambridge House Literacy Scheme, believed that little variation was needed in child oriented methods for use with

adults but felt that it would be wise to explain to adults the reasons for a tutor's actions in order to prevent humiliation. Braziel (1969) felt strongly that adults should be "treated as such". The implication was therefore that if the 'approach' to teaching was appropriate, based on theories of adult learning and the personal characteristics of adult illiterates then little alteration would be needed when it came to the methods employed.

Harman (1970) had identified three main methods of teaching widely used in literacy projects; phonic, look-and-say and reading for meaning, and criticised the 'cookbook fashion' of instructions to teachers. An example of recommended teaching methods is provided in Kamm's (1967) recommendations that phonic methods be used for those pupils who have good powers of synthesis and 'look and say' method for those with good memories. Other writers have stressed the effectiveness of a phonic method of teaching (Henney, 1964), one suggesting that decoding should be in as soon as possible (Roberts, 1974) and another introducing the idea of an 'adult approach' to decoding skills, which involved an informal method of breaking up words into elements familiar to the student (Palmatier, 1976). Moorhouse (1975) in a section entitled Methods and Approaches in the BBC Adult Literacy Handbook recommended the use of processes designed for children but presented differently. She suggested a 'look and say' approach for beginners where the tutor would write down what the student said and help him to memorise the words as whole units. She then suggested that after an initial successful experience had been achieved the student should move on to phonic work. Her main emphasis was upon phonics together with language and topics which are of interest to the student, saying that " an approach using phonic generalisation... in which the patterns of letters and speech sounds are emphasised and gradually built upon with more patterns is both <u>efficient</u> and <u>economical</u>" (her emphasis). "It is efficient because it is systematic and your student can see his learning increase. It is economical because he is learning strategies for coping with unfamiliar words." Following from the assumption that difficulties in reading are based on inability to cope with sound

symbol correspondence in English, reportedly successful attempts to teach adults to read were also made using the initial teaching alphabet in America (Otto, 1972; Brown and Newman, 1972) and in Britain (Moran, 1970). Moran reported an early success with remarkable results saying that the transition to traditional orthography presented no problems.

Research with competent adult readers and related theories about the nature of the reading process did however, lead to questions being asked about the basic appropriateness for adults of methods developed for use with children (Kreitlow, 1972) and the need for clear definition of adult reading requisites was reemphasised (Goldberg, 1951; Harman, 1970). It was pointed out that the aims of adults in terms of reading proficiency are different from those of children and that similarly the processes and strategies through which it is possible to achieve them must be different. In addition the use of child centred methods and materials began to be seen as counterproductive since they can be associated with previous failures in the mind of an adult learner (Rosenkrantz, 1975). Harman (1975) suggested the need for a new look at strategies and interlocking components of reading and reading requisites and their relation to the instructional methods which are commonly employed.

Gibson and Levin (1975) for instance suggested that becoming a skilled reader depends upon the abandonment of phoneme - grapheme correspondence and moving towards interpretation of written syumbols corresponding to more lexical spellings. They emphasised the somewhat weak relationship between good decoding and comprehension, since skilled reading involves being able to make inferences from the text using large units. They suggested that good decoders who have failed to organise text into higher order groupings might still be poor readers.

McFarlane (1974) in Teaching Reading to Adults, a handbook designed for use in British literacy schemes, went some way to disseminating these ideas among teachers. He emphasised the need to 'guess' as being an important part of reading, quoting Frank Smith (1973) as saying that "reading carefully is not efficient

and reading without guessing is not reading at all". He recommended the use of phonics but warned about the dangers of overgeneralisation pointing to what he described as "three levels of reading". At the first "independent" level word recognition is 99% and comprehension is 90% accurate. At this level he suggested the reader meets a "problem word" once in every hundred. At the second, "instructional" level, word recognition is 95% accurate and comprehension 75% correct. Here one word in twenty is a problem. The third and last level, where word recognition is less than 90% accurate and comprehension is 50% or less, he called "frustration level". He argued that teachers should be aware of these levels. At the instructional level they should offer support in the form of telling the student a word he cannot recognise, encouraging him to attack it through context or phonic clues or introducing the use of a simple dictionary. Frustration level material is too difficult he said, and should not be used without considerable support; a teacher should read the passage aloud or pre-record it.

Some experiments in teaching adults to read, albeit disparate and fragmentary, were conducted in the 1960s and 70s. Programmed instruction was tried in the United States. Krebs (1966) evaluated two teaching systems using groups and one to one tuition in Boston. Hankin, Smith and Smith (1967) used a computerised programme to teach arithmetic and reading to disadvantaged adults and youths. In both cases results were inconclusive and the effectiveness of this kind of instruction has still to be demonstrated. The cloze procedure was used on an experimental scale in community college classes in America (Pessah, 1975). When cloze passages were used as part of regular reading instruction, together with discussions about the use of context clues and the logic behind the selection of answers, reading achievements were seen to improve. Pessah laid stress on the importance of discussion for the success of this method. The system of deleting words too in this case seems to have been significant, since there was a high level of redundancy among the missing words, which would not have been the case had random deletions been used.

Cox (1976) in an experiment designed to test the syntactic competence of adult beginning readers found that it was less advanced than that of literate adults and suggested the need to teach them to read complex structures, emphasising the teaching of words in context rather than in isolation. She also pointed to the necessity for teaching 'wh' markers and for the question part of sentences to be actively taught. Related to this in that it too assumes reading to be a process of synthesis and comprehension of larger units than the words and letters of phonic and look and say approaches is Marzano's (1975) suggestion that students should be trained to recognise main ideas and modifying concepts within and between sentences.

With reference to the effective teaching and learning of reading, although there is little doubt that adult illiterates are unlike children in certain important respects such as their reading requirements, language development and attitudes to learning it was not clear at this time whether reliable assumptions could be made about teaching them which were relevant and practical on the basis of what competent adults were known to be able to do. It should be said therefore in partial mitigation of the widespread and continuing use of child oriented methods in the field of adult literacy that their use has occured in the absence of coherent and firmly based alternatives.

More recent studies (e.g. Boraks and Schumacher, 1981) which have reported close observation of adult non-readers, have provided some interesting insights into their learning behaviour. Their findings are reported in Chapter 3.

2. Approach to Teaching.

It was widely felt at the time of the 1970s interest in adult literacy provision that the approach to teaching should at least take account of the special social circumstances and the accompanying problems of adult non-readers. Therefore, suggested approaches to teaching included the use of an informal environment and instruction designed to meet the individual needs of the students, stressing the importance of the relationship between tutors and students.

Most literacy programmes then in existence made use of small group or one-to-one tuition or a combination of the two; this continues. The benefits to be gained from group tuition include "group involvement and improved self-concept" (Council for Adult Education, Australia, 1974) and the "common bond" between students who are "all in the same boat" (Moran, 1970). Opinion has differed however, as to the optimum number of people in a literacy group. Haviland (1973) in his survey found " 107 programmes.... which stated they use classes of 6 to 15 adults for their literacy instruction". He commented on the lack of available evidence for the effectiveness of group against one-to-one tuition. Henney (1964) on the other hand, after comparing the merits of the two kinds of tuition concluded they were equally effective.

It was found that lessons in surroundings unlike those of the students' previous learning experience were helpful for building confidence. New recruits entering the British Army Basic Education Scheme are told "they are not going to start school again" (Moran, 1970). As informal an environment as possible was recommended in the BBC Adult Literacy Handbook (Pascal, 1975); instruction in premises other than school buildings was in use successfully in America (Drake and Morgan, 1975) and Australia (Council of Adult Education, Australia, 1974).

The tutor/student relationship was thought by some to be so important that in many literacy schemes the personal qualities of a tutor appeared to take precedence over formal qualifications or previous experience. The need for privacy and the importance of personal relationships was mentioned in the Bullock Report (1975), Kamm (1967) stressed a student's need for reassurance and a tutor's friendship and Moran (1970) mentioned the importance of student/officer relations for success, and the emphasis place by the army on confidence building. In much the same vein, Sticht (1976) in a description of the US Army Functional Job Reading Training Programme pointed to the need counselling as an integral part of any literacy programme. A need for empathy on the part of a tutor was argued (Roberts, 1974) and that since tutor's attitudes communicate themselves to pupils, literacy tutors should have and transmit expectations of success (Stanchfield, 1976).

Risman (1975), expanding on these arguments, listed numerous qualities which she maintained, were essential to a literacy tutor; sympathy, empathy and objectivity, realism, imagination, understanding, patience, open mindedness, flexibility, ability to listen, stability, resilience, and the ability to remain informal while giving firm guidance. All these are things which one might expect in any good teacher but it was also suggested that qualified teachers are not necessarily the best teachers of adult illiterates. There was a trend towards the use of "uncertified teachers" or "paraprofessionals" in the United States (Greenleigh and Associates, 1966; Brown and Newman, 1972) apparently based on the results of comparative studies demonstrating the sometimes negative correlation between teacher education and learner progress (Knox, 1967). In Britain too, unqualified volunteers had been used as part of literacy schemes at least since 1950 (Haviland, 1973). It was discovered however, that untrained tutors were often unsuccessful and " a few sessions with a student could change cheerful optimism into bewilderment, either because the tutor had adopted the wrong approach with his adult student, or because the tutor was unaware of the strategies of both learning to read and teaching reading" (Scottish Education Department, 1980). Certainly, even when qualified teachers were recruited, specialised training was thought to be necessary (Goldberg, 1951; Detroit University, 1965; Brown and Newman, 1968; Greenleigh and Associates, 1966; Bentovim and Shrapnel, 1975) although some criticised its quality (Brown and Newman, 1972).

In addition to the emphasis which was placed upon the importance of physical and social settings of literacy lessons, approaches to reading instruction were suggested and used which were said to take full account of the individual student and his requirements (Goldberg, 1951; Kamm, 1967; Hall, 1975) and an integral part of this was continuing diagnosis with the modification of lessons in the light of results (Otto and Smith, 1972; O'Donell, 1975; Palmatier, 1976). The importance of motivation for the learning process has also been agreed upon by many, together with the part played by the interest of a student

and the challenge of a given task (Wilson, 1975) and "sequence, consistency and continuity in a positive, success oriented framework" has been seen as being especially valuable in reading instruction (Stanchfield, 1976).

Opinions diverged as to the best methods of providing incentives to learn. Different approaches were illustrated in three reports (Kirchner, 1966; Moran, 1970; Sternum, 1975) of ways used to stimulate motivation. Kirchner and Sternum both stressed the need for precise goals. Kirchner found that students did more work when they were given the results of tests, that recall of unfinished tasks was greater than that for tasks which had been completed and that the placing of a time limit on work to be done effectively influenced accuracy, provided that pressures were not too great. He believed that precise feedback on progress and teacher encouragement to improve were essential. Moran on the other hand, attributed the successful learning of army students to there being no daily target of work set and no checking of the completion of tasks. Another contributory factor to high motivation in his experience was the absence of a timetable, students not being asked to meet deadlines and being encouraged to stop work if they were bored.

The success of these different approaches in different situations might well have been cited in confirmation of the feeling so often expressed, that there is as yet no one proven successful way of teaching adults to read.

3. Teaching Through Television and Radio.

Television programmes designed to teach adults to read have been in use in the United States since the 1950s without notable success. Berg (1960) referred to a programme begun in Tennessee by Laubach in 1955 where adults met in groups of ten to fifteen round a television set to watch lessons given by a trained teacher. The groups themselves were helped by volunteers. In 1958 a series of programmes was shown in North Carolina. Both are said to have failed because they took too little account of the individual difference of the students. Brown and Newman (1972)

described another programme called Operation Alphabet, which was sold to commercial television stations in the 1950s. Its failure, they suggested, was due to the inability of television to fulfil the need of adult illiterates for a live teacher and to the lack of self-discipline of the students. Although records of more recent attempts to use television for literacy tuition in the United States may exist, they have not been discovered for this review.

The BBC Adult Literacy Project started in 1975 as part of the national adult literacy programme. Most of the following information is taken from the account by Hargreaves (1975) in the BBC Adult Literacy Handbook.

The initial aims of the project were to encourage illiterate people to seek help with their problems and to recruit volunteers to help with their teaching. Initially two levels of television programme were planned. The first was called ' On the Move' and was designed to take the form of fifty ten minute weekly programmes repeated four years running in 1975, 1976, 1977 and 1978, beginning in October. The 'level one' programmes were not intended to teach people to read but were designed to motivate and encourage adults with reading problems to come forward. Another aim was to provide publicity which would lessen the stigma attached to adult illiteracy in society.

The second level series of programmes was called 'Your Move' and was designed for "more committed learners" with the intention of providing them with an enjoyable reading experience. These programmes were shown in 1976, 1977 and 1978 again starting in October.

Student workbooks and readers accompanied the project, parts of them being made copyright free for ease of duplication by people providing tuition. An important part of the project was to be a telephone referral service, starting in September 1975, for viewers who wished to make contact with literacy schemes. Also included in the project was a series of eight radio programmes, beginning in autumn 1975, providing information about teaching methods and materials together with the BBC Adult Literacy

Handbook containing complementary information. A postal referral service for tutors was connected with the radio programmes. Jones and Charnley (1978) commenting on the broadcasts as a recruiting stimulus, pointed to their finding that the programmes were most effective when accompanied by some personal or other pressure on students, to seek tuition. In Scotland, a telephone referral service was set up in October 1975, with encouragement from the BBC, as one of the four referral centres in Britain as a whole. From here the names of potential students and tutors were sent out to the appropriate regions. Student enquiries continued in Scotland after the broadcasts had stopped in 1978 at a higher rate than in the rest of the UK. This apparently was due to the continued exposure of the telephone number on STV (Scottish Education Department, 1980).

The Department of Education and Science in its Report on Adult Literacy Progress 1975/76 was generous in its praise for the contribution made by the BBC project in the field of adult literacy. It commented that the project "added a new dimension to the pressure on local education authorities and other providing agencies", adding that the publicity from the BBC project, in addition to the recruitment of volunteers had been of inestimable value in making a national impact.

SECTION II. LINGUISTIC, PSYCHOLOGICAL AND EDUCATIONAL STUDIES OF THE READING PROCESS.

Introduction.

In order to make a realistic assessment of what adult non-readers cannot do it is important to be aware of what it is ultimately desirable that they should be able to do. This can best be achieved through an examination of what is currently known and thought about reading as a process and competent readers in the activity of reading together with what is known about reading acquisition. The process and the reader are really inseparable, like human activity in general. Since knowledge and theory about reading is based on observations of people, readers are inferred in what is said about reading and vice versa.

Reading has been examined from more than one viewpoint, as a psychological and linguistic process involving a variety of individual skills and as a process of interaction between those skills; through observation of competent readers, and children learning. The reader has traditionally been the object of such studies, but more recently linguists have drawn attention to the importance of text in the overall interaction; the notion of skills began to be displaced in the 1970s in favour of comprehension based upon the broader concept of psychological processes linked to such things as context and structure of written discourse.

However, in spite of a move towards interdisciplinary studies of reading, involving linguistic and cognitive processes together, observations of reading connected activities like perception, listening skills, syntactic competence and readability have continued to be performed in the individual disciplines of linguistics and psychology. Although often they ignored some of the broader relationships mentioned above, the results of such studies were felt to be useful in pinpointing interactions at every level of activity in reading, indicating the enormous complexity of the process and the numerous levels at which there is room for failure. Also at about the same time, a number of papers appeared on reading acquisition based on the results of analysis of oral reading errors of children. Through this information it was hoped to find useful pointers to areas of specific difficulty for non-reading and semi-literate adults.

PART I. Adult Readers.

1. Perception and Reading.

Studies of perception in reading have been centred on the recognition of words in isolation and as such are at odds with reading research which emphasises the importance of context. Nevertheless, from such studies it has been found that words are processed faster and more reliably than the elements of which they are comprised (Reicher, 1969) and that perceptual units in words are larger than single letters, single letters interacting to facilitate the recognition of words (Wheeler, 1970).

The results of an experiment using tachistoscopically presented words, by Rummelhart and Siple (1974), showed that the recognition of words may not depend upon the perception of letters at all but of broader visual features. Furthermore, high frequency words were found to be more perceptible than low frequency. Poor reader's in this study not being so well able to read high frequency words. The first point appears to reinforce Reid's (1972) suggestion that the perception of words is a "special kind of form perception". Reid supporting the statement referred to Roentraub's (1968) idea that training in general visual perception does not necessarily transfer to reading and studies by Gibson (1962; 1963) indicating that the perception of graphemes is related to pronounceability rather than to visual elements, a finding which, incidentally, was refuted by Kolers (1970). All of which if true, casts doubt on the potential effectiveness of much used teaching methods that emphasise phonics, graphic recognition and decoding (Boraks and Schumacher, 1981).

With reference to high frequency versus low frequency words, Kreuger (1975) in a comprehensive review of literature related to visual information processing, pointed to a wide variety of studies involving tachistoscopic recognition, visual comparison and letter detection all of which indicated that familiar objects were processed faster than unfamiliar. Kolers (1970) also made this point. Kreuger concluded that no single procedure was capable of providing an explanation for the effects of familiarity, a series of interactions taking place even at the individual word level, and that a good reader might see no more letters at a glance than a poor reader but might be better at inferring the identity of a whole word based on the letters which are seen. He suggested an interchange between verbal and visual codes using a process of anticipation rather than extraction, and involving long-term memory.

2. Listening Skills.

There has been some dissension about how far listening skills are

related to reading ability. Goodman (1973) dismissed the idea of a connection between listening and reading, pointing out that they employed different strategies and that reading unlike listening uses "regression to re-read". In addition to this he pointed to a need for interpretation of context in reading which is not present in oral discourse. In so saying, he departed from assertions made in a previous paper (Goodman, 1967) where he emphasised the connections between anticipation in reading and listening.

Most writers however, appear to see a positive relationship between the ability to understand spoken discourse and the ability to read, especially in the early stages of reading (Sticht, 1975; Neville and Pugh, 1973; Weaver and Rosner, 1975; Stevenson-Hansell, 1976). A reason suggested for the connection between auditory and perceptual skills and primary grade reading achievement (Weaver and Rosner, 1975) is the emphasis on decoding and therefore upon the ability to make individual grapheme-phoneme correspondences, employed in primary reading schemes. Perhaps a more useful illustration however, is the high incidence of syntactic accuracy among children's reading errors (Clay, 1969; Weber, 1970) and those of skilled readers (Kolers, 1970) which possibly indicates an awareness of how the language sounds.

3. Syntactic Competence and Readability of Text.

Opinions have varied about what in a text is difficult to read on the one hand and about variations in people's ability to cope with varying levels of textual difficulty, depending on their own linguistic capabilities, on the other. Early theories of readability were based on difficulty of vocabulary and sentence length and still form the basis of many readability formulae today. When selecting texts for use in this research, and in the later analysis of data, these points were born in mind.

Following from Chomsky's (1957) emphasis upon people's inherent knowledge of syntax, studies of the acquisition of syntactic structures by children have shown that those which are acquired late coincide with those which are difficult to read (Strickland, 1962). In addition, theories of generative

transformational grammar many, as it happens now discredited (Harris, 1957) gave direction to those who sought to establish a hierarchy of syntactic complexity. Gough (1965) suggested that the difficulty of text can be measured by the number of transformations present between a "kernel sentence" and its surface representation. On this basis he stressed the difficulty with which negatives and passives and combinations of the two are commonly understood. In addition he suggested that the length and frequency of a structure bore a relation to difficulty of comprehension.

That some syntactic structures are more difficult to read than others for whatever reason, has been recognised by many writers and there appears to be general consensus on the need to establish an order of complexity; equally there is agreement about the difficulty of doing so. Among those structures which have been considered to contribute to textual difficulty are function words, simple and compound prepositions, correlatives and relative pronouns (Marcus, 1971), conjunctions and imperative transformations (Stevenson-Hansell, 1976), negatives and questions (Stevenson-Hansell, 1976; Cox 1976). In addition, the part of a sentence containing a verb (Kolers, 1970; Reynolds and Flagg, 1975) and relative clauses which interrupt a subject-verb-object sequence (Marcus, 1971; Cox, 1976) have been said to add to textual complexity.

Some writers, in addition to problems caused by certain elements of printed sentence, have concentrated upon possible deficiencies in innate language abilities, measured by tests of comprehension of spoken or written language, which can contribute to the difficulty of reading and understanding certain kinds of text by competent readers. The assumption that adults have acquired a full range of syntactic structures has been so challenged that in many cases the difficulty inherent in reading many of the structures mentioned above is thought not to lie simply with the text but in the failure of many adults to acquire them (Marcus,1971; Sanders, 1971; Kramer, Koff and Luria, 1972; Cox, 1976). It has been suggested that because of their relative

infrequency and complexity some linguistic structures which are learned late in life never become as automatic as those learned earlier (Kramer et al, 1972).

Two features of much of the above work which have been questioned are the predominance of syntax in text and the emphasis upon the sentence as the main meaning-bearing unit in English. The importance of non-syntactic information to the extraction of meaning from text was emphasised, following from work by Fillmore (1971) and Chafe (1972) on generative semantics (Stevenson-Hansell, 1976) resulting in a movement towards the examination of influences upon comprehension and readability across sentence boundaries and a view of reading as a total meaning-extraction activity involving interactions at all levels (Gibson and Levin, 1975; Smith, 1975). All this, notwithstanding, when this study began, assertions were made about the linguistic competence of less-than-adequate adult readers, which implied that none of the above applied to them. Much of the above research into syntactic and semantic difficulties associated with text having been perfomed with competent adults, less competent readers might be assumed to be affected too.

4. Interactive Processes Involved in Reading.

Most current theories of reading incorporate some version of interpretive synthesising activity. Previously, emphasis was placed on a reader's ability to make sound-symbol correspondences with prediction based on basic knowledge of what is syntactically and semantically possible in English. Kolers (1970) criticised the treatment of reading as having simple causal explanations, suggesting a combination of "visual operations, sensitivity to grammar and direct perception" as being important for reading competence. Referring to work suggesting that the recognition of words is not dependent on individual letter recognition he suggested two processes occurring in parallel involved in the perception of sequence; "initial schematisation" and "subsequent filling in", each requiring a different amount of time for completion. He also suggested that errors made by skilled readers

were based more upon ambiguity of appearance than on sound similarity and that the beginnings of words contributed more to their identification than the remainder.

On the subject of sensitivity to grammar he referred to several studies of reading errors of college students on transformed pages of text, which showed a high incidence of syntactic appropriateness among substitution errors and a tendency for errors to conform more regularly to syntax than to visual similarity. Kolers (1970) criticised the ambiguities in the then available descriptions of grammatical complexity, in particular the use of deep structure analysis which he said often leaves unclassified words in surface structure for which errors are made.

In illustration of the "perception of meanings and relations", his "third stage of reading", Kolers performed experiments using texts written in English and French read by bilingual subjects. He found that when subjects were shown pairs of words on a tachistoscope in both languages, meaning the same but looking different, the probability of them recalling individual words was equal to that for the same words presented twice in one language. Also, subjects' comprehension of mixed English and French texts was as good as for monolingual ones; when asked to read passages aloud, errors took the form of translations from one language to the other; in addition, distorted syntax was corrected without the awareness of the readers. Kolers concluded from these experiments that skilled readers treat words as symbols, operating on them in terms of their relation with other symbols.

Although he discussed the different elements involved in reading, however, Kolers made no attempt to provide an explanation of their integration into the reading process. Referring to a number of papers published in the 1960s, Reid (1972) suggested that a coherent theory of literacy should be based upon the detailed study of integrative activity on the part of competent readers. Among the papers referred to by Reid are suggestions that the ability to read is related to a reader's awareness of the syntactic and phonological rules of English (Epstein, 1961;

Gibson, 1962; 1963), that speed accuracy and eye voice span are affected in mature readers by the degree to which a text approximates to English (Morton, 1961), that scanning and chunking by adult readers is affected by the syntactic structure of prose (Schlesinger, 1968) and that reading rests with the ability to " respond simultaneously to a variety of kinds of sequence" (Merritt, 1969).

Weight has since been lent to Reid's concept of a process integrating visual, syntactic and semantic components (identical to Kolers' three stages), involving the use of memory, comprehension and anticipation by studies pointing to short term memory as a vital integrating factor in reading (Carver & Darby, 1971; Furukawa, 1975) and the overall impossibility of isolating individual reading skills (Farr and Roelke, 1971).

One attempt to provide and explanation of how skilled readers synthesise the processes and information described by Kolers and Reid which went some way theoretically to meeting Reid's call for emphasis upon the integrative activities involved in reading was that of Goodman (1973). He suggested that neither listening nor reading are precise activities and that an efficient reader extracts meaning from text through a process of sampling, using the redundancy of language together with his own knowledge of syntax to predict structures and test them against semantic context, confirming or rejecting them as further language is processed. In addition to this Goodman maintained, he must be able to interpret a writer's contextual references. Competent readers, he said use syntactic and semantic cues to such an extent that in many cases only minimal graphic references are required. He concluded by emphasising the need for strategies, rather than skills, which vary with the nature of a reading task.

Another account of the processes employed by skilled readers (Gibson and Levin, 1975) claimed that more than a high order perceptual skill, reading is a complex, cognitive, rule governed process, incapable of description in simple terms and pointed to the fact that the development of the flexibility known to be essential to skilled reading was as yet unexplained. In addition

to many of the points made by other writers above, Gibson and Levin put forward the idea of an economy principle, very similar to Goodman's "sampling", whereby the skilled reader ignores irrelevent information and processes textual material in the most economical way possible. Expanding on this theory they suggested that in any task, the largest appropriate units are processed, attention being directed when necessary to features of letters, letters, words, phrases or clauses. A clever reader they maintained, would extract the minimum amount of information compatible with his task and that in addition, adaptive reading is characterised by the continual induction of information, processing being reduced according to the number of alternatives that succeed, which in turn are reduced by the use of old information with which to compare the new. Gibson and Levin were critical of explanations of reading in terms of information processing or analysis by synthesis, on the grounds that reading involves more than the reproduction of sounds or a process of guessing and confirmation. They described the mature reader as possessing flexibility of attentional strategies which enable him to attend to those features which are of most use to him, changing for the purpose of reading different kinds of information and with the nature of the text, and which are modified with the rate of gain of knowledge, with familiarity of information and with personal interest.

5. Comprehension and Semantics in the Reading Process.

Although mention had been given to semantic information in many theories of reading it was commonly described as something inherrent in the reader, like syntactic knowledge which is brought to bear on a text for the purpose of facilitating prediction. The extraction of meaning from written discourse however is an area which hitherto had been neglected. Comprehension had traditionally been thought of as separate from the "mechanics of reading", and tests of comprehension had been used simply to ascertain sufficient understanding of a topic to imply efficient use of reading skills. If comprehension had been seen as an

integral part of the reading process, the lack of it had been attributed to some fault on the part of the reader rather than characteristics of the text.

Attempts to define comprehension at the time however, emphasised the part it plays in skilled reading and pointed out that the simple ability to decode does not imply the extraction of meaning and that skilled reading involves the ability to make inferences from a text using large units (Gibson and Levin, 1975), which in turn requires the ability to organise semantic and syntactic information in a meaningful way (Weaver and Rosner, 1975). Further to this it has been said that even if individual words are understood, the meaning of a text might not be grasped if specific knowledge is lacking (Sticht, 1975). Another theory holds that comprehension is related to the ability of a reader to recognise differing units and levels of modification, depending on the identification of main and subordinate ideas within and between sentences (Marzano, 1975).

On the subject of storing and retrieval of semantic information, Nelson and Kosslyn (1976) suggested that comprehension used on sentences depends on material being reached in long term memory, there being little developmental change between eight years and adulthood in the processes involved, but that improvement lies in the development of an ability to apply the information.

The interactions between the structural properties in text and the cognitive processes involved in comprehension were discussed by Smith (1975) in an effort to draw together then current thoughts about semantic elements involved in the reading process. Concerning the analysis and structual properties of text, Smith made reference to the influence of Chomsky upon linguistic theory, leading to an emphasis upon the sentence as the largest unit of textual analysis and syntax, as opposed to semantics, in sentence structure. The emphasis at that time upon semantics and discourse as a unit for analysis was documented together with the abandonment of projection and transformation in favour of a single system of mapping.

Smith (1975) also gave attention to three types of context; conceptual, where there is a presupposition held by a writer at the time of writing, extra-linguistic, dealing with time, place and the location of the participants together with their identities, and linguistic, the context provided by the discourse in which any sentence is embedded. Reference was also made to attempts to generate text grammars on the basis of a text, rather than the sentence as a unit of analysis, the suggestion being put forward that a linguistic model of discourse structure is a prerequisite for research on the structural properties of text and their interaction with the processing characteristics of readers.

With regard to the measurement of the knowledge acquired when a text is understood, Smith (1975) emphasised the need for procedures using the analysis of textual structures to measure the semantic information acquired by readers when they understand text. The need for detailed models of textual meaning and what is understood, before the relationship can be examined was also pointed to. Smith cited the work of Bransford and Franks (1971) and Fredericksen (1972; 1975) where two kinds of knowledge acquired from text by a reader, were discussed; information which is derived from content and information which reproduces content. Several methods of measuring this knowledge were described, including free recall, meaning reconstruction, precis writing and question answering. The analysis of recall was described on the basis of "inter-response dependencies" which show how propositions acquired from reading texts are interrelated.

Variations across age, language, social and cultural groups in the kind of semantic information which is acquired when a discourse is understood were suggested. The structural characteristics of text were also said to influence the way in which it is processed and what knowledge is acquired.

The possibility of isolating the effects of different levels of structure on the comprehension process was suggested, so that texts could be varied to assist comprehension in different circumstances. In connection with this, reference was made to research showing for example, that sentence recall depends more

on the number of propositions involved than the number of words, and that the location of a proposition in a hierarchical structure is critical to the recall of information (Meyer, 1974). Type and amount of information and syntactic complexity were also seen as contributing to difficulties of understanding written language. The point was made however that semantic complexity is not as clearly definable as syntactic complexity, depending on things like the ease of derivation of word meanings, either facilitated or otherwise by context, the choice of words and the surface organisation of semantic information in a text.

In this context it was said that the knowledge of language in the sense of linguistic competence is important, but not sufficient in itself to ensure comprehension, the ability to understand discourse depending not only upon linguistic knowledge but also upon knowledge and skills generated by the comprehender. Finally it was suggested that the use of knowledge could be an indication of understanding, since there are differences between understanding in theory and in practice. This could be achieved it was said, by encouraging people to read for a purpose, and testing their ability to use the information they have gained.

PART II. Children's Reading Acquisition.

1. Oral Reading Errors.

Studies of the reading process have tended to polarise into those which are occupied with observing the reading of competent adults as described above, and those which focus on the normal process of reading acquisition by children, although recently more attention ahs been given to adults in the process of learning to read (see Chapter 3).

Attempts have been made using information drawn from such studies, to generalise about reading as a psycholinguistic process. A separate and important part of the reading literature is that dealing with people for whom reading is difficult and educationalists and psychologists in particular have been concerned to find reasons and ways of helping poor readers. Such studies however as with studies of reading acquisition in general

have traditionally occupied themselves with young children as being those who could most obviously benefit from the results.

One major technique, long in use but newly approached by several researchers in the early 1970s is the recording and analysis of oral reading errors as a guide to processes underlying reading acquisition, on the assumption that errors will illustrate the processes by which correct responses are achieved.

Such studies focussed on children in the early years of primary school - beginning readers - and charted their initial attempts at dealing with the printed word. Methods and analyses were diverse and have been criticised on these grounds (Potter, 1980), but all seemed to agree about certain aspects of reading acquisition; the use of intrinsic knowledge of language structure and the bringing to bear of this on attempts at reading, shown by the high levels of syntactic and semantic appropriateness of the many errors and the developing use of graphic and phonemic strategies to deal with the cues present in text. Another important point to emerge was the use of self-correction as a sign of progress in better readers. Naturally enough the children were found to progress at different rates, some having more problems than others. The findings of these studies have contributed to the theory that reading is a synthesising and integrative activity.

Rosemary Weber (1968) in a widely quoted review of the literature on error analysis hitherto, commented critically on the emphasis given in previous studies to the 'subskills' of reading and also on the difficulty of making comparisons between the results of such studies. By the time of Weber's review of the relevant literature in 1968 it had already been established that errors could provide vital information about the process of reading acquisition in young children. Poor readers had been shown to make more errors than good readers (Swanson, 1937). More than half insertion and omission errors were found to be articles (Madden and Pratt, 1941). Errors were usually the same part of speech as required responses in text (Bennet, 1942). Vocabulary appearing in passage contexts was more easily recognised than when

it appeared in lists (Goodman 1965). Ungrammatical errors were more often corrected than grammatical ones (MacKinnon, 1959). Weber (1968) herself found that both good and poor readers made syntactically acceptable responses in prior contexts 90% of the time. She found also that good readers corrected only errors which did not conform to the grammar of a sentence while poor readers did not distinguish in this way before they corrected.

At about the time of Weber's review, between 1968 and 1972 approximately, a group of papers describing the results of error analysis was published which highlighted some important aspects of the development of reading skill in young children. Much of the information published at that time had not previously been available and although again, the methods used in such studies were various and the results difficult to compare, the findings have a lasting interest.

It was suggested for example (Clay, 1968) that the error behaviour of children was influenced by the syntactic nature of text being read, rather than its graphophonemic elements.

Later, Weber (1970a) found that children learning to read attended to syntactic and semantic elements of text so much that 91% of all the errors made by her sample of children were syntactically acceptable in prior sentence contexts. She also found that when children produced errors which were graphically similar to text they tended to produce less syntactically accurate responses. There was an increase in the use of graphic information as the children became more skilled.

At about the same time, Beimiller (1970) identified three stages which children passed through when learning to read. In the first, errors tended to be syntactically and semantically appropriate, in the second there was an increase in non-response errors and in the third, errors which took account of both context and graphic resemblance. His explanation for non-response errors was that "they are an indication of progress rather than weakness, early in the (first) year. They may also be indicative of readiness for phonics instruction". The findings in all these studies were restricted to children using graded reading schemes.

Interestingly, it was also found that beginning readers, when producing substitution errors tended to substitute words which had already been met in text (Weber, 1970: Cooper, 1975: Francis, 1977). Donald (1980) pointed out that the nature of the reading material was probably influential in this respect, since the language of reading primers is highly repetitive and predictable.

2. Self-correction.

Another area of great interest with regard to children's reading errors was illuminated by Clay (1969) when she recorded the 'self-correction' behaviour of young children. Self-correction involves the correction of an error by a reader without help. Clay found that better readers corrected their errors more frequently than poorer readers. She had previously found (Clay, 1968) that certain linguistic classes were corrected more frequently than others. Pronouns, for instance had high rates of correction when compared to nouns. Weber (1970b) found that good readers corrected 85% of their syntactically inappropriate errors, while poor readers corrected only 42%.

Goodman and Burke (1973) found a strong connection between syntactic acceptability and correction. Syntactically unacceptable errors tended to be corrected along with those which were acceptable in prior contexts and those with low graphic proximity. On the other hand, semantically acceptable errors were corrected less often than syntactically acceptable. Donald (1980) in his critical review of error research, suggested that "self-correction appears to be central to the optimal development of reading" but expressed doubts as to whether it was in any way responsible for good reading progress, suggesting rather that it was more likely to be symptomatic.

3. Metalanguage.

Various researchers have indicated that the level of understanding of the language with which text and the reading process are described varies between good and poor readers. Clay (1966), Downing (1970; 1979) and Reid (1966) all interviewed children and

found thay had inadequate concepts of many of the terms used to talk about reading, like 'letter', 'word', and 'sentence'. Evans, Taylor and Blum (1979) using a battery of tests on written language with children found their 'metalanguage' interview the best predictor of reading scores when compared with other measures of knowledge about the writing system. These tests are based on the assumption that the ability to use the appropriate language to describe a task, indicates a form of understanding; at least without such language, understanding might be supposed to be either limited or absent.

SUMMARY.

The literature reviewed in this chapter is in two broad areas. The first section has dealt with social and statistical information about adult illiteracy; tuition facilities for non-readers and suggested teaching methods. Opinions were divided as to its supposed causes and its treatment. On the one hand, there were suggestions that non-readers are personally deficient in some way and on the other, the more fashionable view, certainly when this study commenced, that illiteracy is deprivation based. The assumptions embodied in this second view are that illiteracy is a specific difficulty in every case and as such, unrelated to problems in other areas. Some writers went so far as to stress the language skills and superior intelligence of adult non-readers.

In the second section there is pedagogical, psychological and linguistic information about reading as a process which seems to suggest the need for certain skills 'internal' to the reader, in order for success to be achieved. This information is drawn mainly from observations of competent adults and children in the process of learning. Reading here is seen generally as an integrative set of processes closely linked with and dependent on linguistic skills and various aspects of cognition.

Recently, in the last four or five years, there has been interest shown in the reading strategies used by illiterate and semi-literate adults, with the result that the recording and analysis of oral reading errors has begun to be used as an analytical technique with them. The results of studies of this kind are reviewed in Chapter 3 alongside other literature directly relevant to reading acquisition in adults.

CHAPTER 3. REVIEW OF LITERATURE II. RESEARCH WITH SPECIFIC RELEVANCE TO THE AREA OF ADULT READING DIFFICULTIES.

INTRODUCTION

At the time of this study, most of the research involving direct observation of adult illiterates in learning situations had taken place in the United States where adult basic education programmes had been established for some time and have always been conceived of as fulfilling a broader function than either British "adult education" classes or the more recent "literacy programme".

This literature has been divided roughly into four sections, cutting across the areas of linguistics, psychology and education and interlinking with each other in certain respects. Section I contains studies concerned with the various aspects of adult learning; memory, attitudes, personality and interest, their relationship with one another and with factors like teaching methods and age. Section II comprises those studies where elements with specific relevance to the reading processes of adults have been observed and measured, in particular those studies which have paid attention to reading difficulties. From this section, although it is fragmentary, inferences may be drawn about the possible linguistic and psychological difficulties of adult illiterates in relation to reading, especially when they are viewed in the light of existing evidence and theories of the nature of reading and reading acquisition. Section III deals with measurement; of reading progress, reading ability and difficulty of text in the form of "readability". Finally, Section IV examines methods of collecting data relevant to the reading process with special relevance to adult samples. The literature described there emphasises certain practical problems which have to be tackled if successful research is to be carried out in the area of adult illiteracy.

SECTION I. ADULT LEARNING.

1. Ageing and Learning.

It was pointed out in Chapter 2 that the special needs of adult illiterates should be linked with what is known about adult learning in general rather than what is known about how children learn to read, since adult expectations are widely different from those of children (Otto, 1972).

Much of the literature about the teaching of adult illiterates reviewed in the preceding Chapter is based on generally held theories of adult learning. It has long been known for instance that as people age they resist change and are less likely to modify their interests and opinions (Thorndike, 1928; 1935, referred to in Lorge, 1966). Fay (1966) stated that although adults are more realistic in their learning attempts than children, they tend to underestimate their abilities; this being one reason why counselling is often recommended in association with adult education programmes. She pointed out that adults conform to the role of "adult" as they see it lacking the spontaneity of children and that anxiety, increasing with age, produces emotional stress in learning situations resulting in ineffective learning.

Attempts have been made to discover how the ability to learn is affected by ageing and opinions have differed as to whether older people are more or less capable of learning than younger. Lorge (1966) referred to studies showing that speed of reaction declines after the age of twenty-five and pointed to the tendency of some observers to confuse "learning efficiency" with "learning ability". The results of a study by Gounard and Keitz (1975) showed these elements as being distinct from each other. When female secretaries aged 18 - 25 years and elderly people aged 60 - 79 years were asked to recall pictures and words it was found that although pictures were more easily recalled than words for both groups, the younger people had more efficient recall abilities than the older. However the extent to which the recall of pictures was superior to words was the same for both age groups. During the course of the experiment the older group

improved their performance to the same extent as the younger. It was concluded that although cognitive strategies might be inferior in older people there was no indication that they were different in kind from those of younger people and that age differences do not indicate a basic change in underlying storage processes.

Other studies have shown that learning capabilities do not decline with age as much as had been thought (Heimstra, 1975) and in one instance where adults and children were tested on their ability to recognise pictures, the recognition abilities of the adults surpassed those of the children (Nelson and Kosslyn, 1976).

There is a possibility that literacy may influence older people's learning abilities. Cox (1976) found that when literate adults were asked to read complex syntactic structures, older people performed better than younger; however when illiterate adults were tested in a similar way the older people performed less well. Cox's explanation for this was that the older competent readers had practised reading more than the younger whereas the older poor readers were further from their reading experiences.

In the absence of more conclusive evidence about about how ageing generally affects learning abilities a realistic assessment was provided by Papalia and Del Vento Bielby (1974) who gave emphasis to the wide individual differences to be found in adult cognitive performance. Such variations might be linked with the results of studies showing adults as having varied styles of learning and preferences for how they should be taught. It was also demonstrated that the ways in which adults tackle tasks vary in sequencing and pacing (Elliott, 1975). The identification of such cognitive styles showed for instance that many Adult Basic Education students would rather learn by direct assistance than through less personal methods (Manzo, 1975) and has been used by teachers to assist in the identification of methods of acquiring information preferred by their students (Niagara Falls Board of Education, New York, 1976).

2. Attitudes to Learning.

Two aspects of adult learning commonly referred to are motivation and interest, the presence or absence of which in a learner are said to interact closely with and to be influenced by the nature of learning objectives, reasons for seeking to attain them and the means by which they may be attained. In the field of adult literacy attitudes to learning to read have been said to be influenced by initial attitudes to reading, stemming from perhaps previous experiences of failure, reinforced or modified by the methods and material through which instruction is carried out.

Kirchner (1966) suggested that motivation to learn in adults is related to a number of complex values and social influences like aspiration, intelligence, personality needs and social situation. She referred to research in the field of social psychology suggesting the individual raising and lowering of goals in accordance with membership of or aspiration to social groups. With respect to the relationship between motivation and intelligence she drew on two papers, by Greenwood (1932) who found no correlation between IQ scores and persistence, and Thurstone (1937) who suggested that although motivation may increase the speed at which a person works, it cannot create ability. He added that motivation can only develop existing potential although the lack of it can allow existing abilities to wither. This latter point can be illustrated with reference to the atrophy of unused literacy skills (Harman, 1975). On the question of the relationship between persistance and achievement in the area of adult illiteracy, Sticht (1975) implied that even assuming the potential for literacy in childhood an illiterate adult is unlikely to be able to realise that potential regardless of motivation.

Kirchner (1966) pointed also to the importance of personality and social needs for motivation saying that for example, parenthood and retirement could usefully be considered as developmental tasks. Such stages she suggested could be seen as "teachable moments" when specific roles must be filled in a limited time, the sense of urgency being channeled into adult

education. Fay (1966) supported this emphasis upon needs as motivating factors in adult learning, adding that goals are commonly rooted in the near future and are connected with community and economic status and vocational achievement. The reasons commonly given by students enrolling in literacy schemes are an illustration of this.

Where social situation is concerned, Kirchner with reference to the results of a study by Love (1953) said that enrolment in an adult education class depended on an awareness of education as being of positive value for solving problems and its equation with happiness in a student's mind. Because many students enrolling in literacy schemes started with an awareness of their lack of education their first contact with a scheme, she said was vital. In this she was supported by writers about the practical aspects of literacy provision (Kamm, 1968; Risman, 1975).

Kirchner suggested that an individual may not be truly aware of his own motives. Referring to the work of Styler (1950) she stressed that personal motives in adult learning are more powerful than altruistic ones. In addition to past studies like those reviewed by Kirchner, out of which grew generally accepted theories of motivation in adult learning, certain specific approaches to teaching illiterate and uneducated adults have been thought to strengthen motivation to learn (Pessah, 1975; Wilson, 1975; Stanchfield, 1975; Sternum et al, 1975). The findings of such studies have been mentioned in the sections on teaching.

Charnley and Jones (1979) in a study of the 'Concept of Success in Adult Literacy' said that groups as opposed to one-to-one tuition were advantageous "as mirrors by which individual students were able to measure their self-image". They found that students' criteria for success changed during the period of tuition, the "emergent criteria" putting affective social, personal and economic achievements before cognitive and enactive achievements in importance. At the beginning of their study cognitive and enactive achievements had been given more importance by students. This is to say that the importance of self-image received finally, more emphasis than cognitive achievement, especially among less competent students.

Finally, Boraks and Schumacher (1981) found that adults who attended classes regularly made much more progress than those who did not, but that poor attenders were more common. It appears from their research, with Adult Basic Education students, that students dropped out if teaching methods did not meet their expectations; they expected learning to read to be difficult and if it proved to be easy, they felt they were not learning. Boraks and Schumacher concluded that task presentation should be sufficiently precise for a student to know what aspects to attend to, or misunderstanding of a task would occur.

3. Reading Materials - The Importance of Interest.

Great emphasis has been laid by many people involved in the teaching of reading to adults on the need to take account of student interests when choosing reading materials (Burt, 1945; Greenleigh and asssociates, 1967; Kamm, 1967; Moran, 1970; Adult Education, 1975; Bullock Report, 1975; Nieratka and Peachy, 1975; Cox, 1976) or planning teaching methods. The preoccupation with the interests of students has been based on literature about adult education stressing the importance of interest for successful adult learning. Attempts have been made to establish positive links not only between interest, learning and performance but also with social class (Bamberger, 1975). With regard to interest and learning in adults, Lorge (1966) in a review of Thorndike's (1935) work on the psychology of wants, interests and attitudes reinforced the point made by Thorndike that there is only a slight decrease in the volume of interest between the ages of twenty and fifty and mainly related to physical activities. He said that the important interests for adult learning do not decline but that if a learning task provides no satisfaction then learning will be slow. He also suggested that the attitudes and interests of some people may prevent them from learning at all.

Fitzgerald (1975) referring to reports seeking to link interest with superior performance criticised their evidence for being inconclusive and often inconsistent. In an attempt to

establish whether there were links between the expressed interests of adult education students and their subsequent performance in reading texts on various topics he found that they were not related in all cases. Poor readers in his sample appeared to be more sensitive to interest than more competent ones.

In the field of adult literacy the apparent irrelevancy and unacceptability of institutional materials was blamed for the general apathy to Adult Basic Education classes in the United States (Rosenkrantz, 1975). It was said that illiterate adults are only interested in materials which have an immediate and recognisable value for them (Brown, 1970; Nieratka and Peachy, 1975) and that of particular importance is the provision of easy to read, interesting matter for people who are newly literate as a means of reinforcing their recently acquired skills (Otto, 1972).

The lack of commercially published reading material specifically designed for adult beginning readers at the time of this study, was widely acknowledged. In some cases in the absence of more appropriate materials, books written for children or adolescents were recommended for use with adults (Kamm, 1967; Moorhouse, 1975), but it was generally accepted that such reading matter although possibly of the right levels of difficulty often lacked relevant and interesting content. Out of this lack sprang a common emphasis on the need for tutors to prepare materials suited to the needs and interests of their own students, themselves (Clark, 1965; Kamm, 1967; Moran, 1970; Otto, 1972; Anon (Adult Education), 1975; Moorhouse, 1975).

SECTION II. ADULT READING DIFFICULTIES.

1. Differences Between Adults and Children.

As documented above, there was at the time of this review, much literature published about personality characteristics and backgrounds of adult illiterates said to contribute to their not having learned to read. There was however, for a number of reasons, a marked lack of information available about the specific reading difficulties of adult non-readers. By some it was assumed

that they were the same as those found in children. A small amount of evidence was available however, which implied that the reading problems of adults were different from those of children if only because adults are at a different stage of their development (Cox, 1976; Boralis, 1978).

It was suggested that even when adults make progress with literacy, their capabilities remain between two and three years behind their assessed level of school learning (Otto, 1972; Sticht, 1975) so that if an adult is assessed as reading at the eighth grade level, his performance in certain respects will be equivalent to that of a child at the fifth grade level.

Sticht (1975), making the assumption that literacy skills have the same base as oracy skills, stated that a child's basic comprehension by "auding" (processing language by ear) is superior in the early years of school, but that then reading catches up. He also suggested that between three and five years are needed for children to develop automaticity in decoding. He pointed out that in the light of these things, the short amount of time spent by adults in attending literacy tuition is only sufficient to bring about a one or two level gain in skills measured by standardised tests; bearing in mind that reading at a grade level does not necessarily imply that an adult has the equivalent automaticity.

In order to illustrate his points, Sticht performed two studies, one to assess the discrepancies between auding and reading skills and the other to measure automaticity of decoding in children and adults who were enrolled in reading classes. The tests used in the experiments took the form of tape recorded texts, played while the subjects read printed versions in front of them. In the first test the subjects were asked to ring words which were read wrongly. In the second, three alternatives were printed, one of which matched a word being read and had to be ringed. The second test was followed by multiple choice comprehension questions and both listening tasks were performed at varying speeds of the tape. It was found in confirmation of Sticht's hypotheses that fifth grade pupils were able to perform the tasks at faster speeds than adults who were assessed at the

eighth grade level.

2. Adult Poor Readers.

Gibson and Levin (1975) took Sticht's emphasis upon the lack of automaticity of decoding in poor readers a stage further to say that even with good decoding, if a text is not organised into higher order groupings, comprehension may not be achieved. They suggested that poor readers have not taken the essential step of abandoning the idea that phoneme grapheme correspondence constitutes reading which they must do in order to progress to the more complex stages of reading. They described two experiments which showed a lack of flexibility and adaptability in the reading strategies of poor readers. In the first, poor readers heard a story and were taught to identify the individual words in it. When subsquently they were asked to read it as a continuous text they were unable to extract meaning from it. In the second experiment, both good and poor readers were given texts to read for general impressions and for detail. It was found that the good readers were better able to read for detail and to describe the process than the poor readers. In additional support of their theory about the lack of flexibility of poor readers, Gibson and Levin suggested that poor readers use the same eye movements regardless of the nature of a text and that they have a short eye-voice span, not grasping a unit of meaning before it is expressed by the voice. In addition, they pointed to the inability of poor readers to use grammar as a means of simplifying a reading task.

That illiterate adults are perhaps insufficiently aware of syntactic structure in printed language was illustrated by the results of a study by Cox (1976) of the syntactic competence of adult beginning readers, where beginning readers made four times as many errors on various syntactic structures in printed sentences as college students. Further to this it was suggested that poor readers have difficulty with integration, being unable to perform cognitive acts like suspending judgement, modifying a first guess in the light of subsequent experience and fusing

information from different cognitive skills (Reid, 1972). As Sticht (1976) pointed out, however, there is very little positively known about less literate people as information processors in spite of so many suggestions having been made. In addition to the above suggestions for instance, it was said that difficulty lies in the inability to use contextual constraints, especially across sentences (Neville and Pugh, 1972) and that for some, comprehension depends on there being explicitly stated logical relations in a text.

Sticht (1976) again asked several questions including how a person who becomes literate late in life uses his skills, and whether this differs from the way an adult who became literate at the time of childhood would use them and whether learning to read affects a person's information processing capabilities by possibly increasing his tendency to use information processing skills.

In a study to determine whether adults with reading problems had the same 'classification skills' as adults who were normal readers, Whyte (1980) found that normal readers were much more adept at classification skills. Her conclusion was that a deficiency in acquiring certain cognitive skills can hamper reading and general literacy, and that it is likely that adults who failed to learn to read as children were also slow at developing classification skills. She has suggested that remedial teaching based on mis- or inadequate diagnosis leads to inappropriateness of treatment and a lack of lasting gains.

Barton and Hamilton (1980) in comparing the sequential awareness skills of adults with low literacy with those of more literate adults found such awareness to vary with reading level. The sample observed consisted of adults enrolled in adult education classes, divided into three groups according to reading level. The components which accounted for differences among their sample were those measuring word segmentation and those measuring smaller units within a whole. The smaller the units to be segmented, the greater the difficulty that occurred. The main exception to the general findings was that identification of the first sound in a word was less difficult than other tasks and did

not help to distinguish between groups. The explanation given was that it was a highly schooled activity. Most difficulty was encountered in breaking words into syllables or sounds.

Ferguson (1981) in a study of metalinguistic awareness of adult readers, concluded that the recognition of words and word boundaries correlated better with the reading levels of his subjects than with their age or amount of schooling which would seem in part to support the findings of Barton and Hamilton (1980). His sample consisted of 60 unemployed English speakers and 26 bilingual Spanish/English speakers enrolled in adult education classes in California.

Boraks and Schumacher (1981) using an adapted form of the Goodman-Burke taxonomy of oral reading miscues, did an ethnographic study of the word recognition strategies of 14 adult beginning readers. Of all the existing published research on the topic discovered, this is the one most resembling the work described in this thesis. In it, in spite of the fact that the behaviour of students was so idiosyncratic as to preclude generalisation, they found differences between adults who made progress and those who did not. Those who made progress were able to identify their own knowledge and made successive attempts at problems. They could manipulate vowel sounds and segment words into syllables and other parts. They were able to monitor meaning and would correct themselves more than once if a first correction was unsatisfactory. They focussed on meaning rather than graphic features of text and were able to correct larger units than words alone.

In contrast, those who made less progress were able to note that one word resembled another but were unable to put the information to use. They made successive attempts but were inflexible about changing associations. In general they were not persistent, were prepared to accept meaningless words and failed to monitor meaning in context. They used the same strategies to deal with word lists as they used for continuous text.

Unlike Cox's (1976) subjects, most of the students here appear to have had little trouble with syntax; prior context

acceptability being generally more common than following. Many of the subjects made heavy use of graphic but not phonemic clues and it was agreed that difficulties with abstraction might account for this. The main difference between the two groups of subjects appears to have been one of awareness and of attention to meaning in processing text.

Recently, Thomas (1984) in a study of good and poor adult readers, found a relationship between 'attitude, knowledge and self-concept' and reading comprehension. He pointed to fundamental differences in the ways in which good and poor readers perceive the process of reading. He found, much in the same way as Boraks and Schumacher (1981) that poor readers were relatively unaware of reading as a search for meaning, or of the strategies necessary for proficiency.

It is still the case however, that, as with most areas concerning adult illiteracy, insufficient is known, not the least about what prevents people reading but about what happens to them when they begin to learn.

SECTION III. METHODOLOGICAL CONSIDERATIONS.

PART I. MEASUREMENT.

1. Adult Reading Ability and Progress.

The long-term equation of lack of reading ability with child development meant that when focussing upon the lack of reading abilities in adults both reading ability and the difficulty of teaching material continued to be measured against the expected achievements of children. In Britain, the criterion used is still the average attainment of children of a certain age and in the United States, the average achievement of children at different school grade levels. The definition of an illiterate person in Britain at this time was someone with a reading age of less than seven years (Ministry of Education, 1950; Kamm, 1968; Moran, 1970; NARE, 1972) and in the United States, with a level of achievement less than a child at the beginning of the fourth grade level (National Centre for Health Statistics, 1976).

Such comparisons were criticised (Moorhouse, 1975) and their unsatisfactory nature in the light of research was widely accepted (Droege, 1970; Otto, 1972; Sticht, 1975; Cox, 1976; Hillerich, 1976). Among the reasons given for these criticisms were a tendency for "grade level" to assume regular growth at school and for norms to be based upon the administration of tests to populations of schoolchildren (Droege, 1970) grade levels reflecting age rather than achievement (Hillerich, 1976) and that Adult Basic Education teachers' assessments of the suitability of books for their students in terms of difficulty, rarely corresponded to the levels given by publishers based upon child centred norms.

The credibility of these criteria when used with adults was further challenged by the results of experiments suggesting that the reading abilities of adults with low levels of literacy were often two or three years below those of children at a grade level equivalent to that indicated by their performance on standardised tests (Otto, 1972; Sticht, 1975).

2. The Readability of Adult Texts.

The readability of literature designed for children has, since the 1930s been measured with readability formulae, using vocabulary difficulty and sentence length as measures of the ease with which a text can be understood by children of certain age or grade levels. They have been felt to be unsatisfactory for a number of reasons, in addition to their inappropriateness for use with materials for illiterate adults.

Gilliland (1976) pointed to the oversimplification inherent in the suggestion that word and sentence difficulty are the main causes of textual difficulty, adding that word and sentence length can be unreliable indicators of semantic complexity. He suggested faults in the underlying assumption that the relationship between word and sentence difficulty is a linear one. He emphasised instead, a curvilinear relationship between difficulty of text and reading age, such that the more competent a reader is, the smaller the increase in skill needed to deal with increasing textual

difficulty. In addition he suggested that a reader's skill in dealing with difficult words does not necessarily increase in direct proportion to his skill in dealing with sentences, so that poor readers may have such difficulty recognising words that sentence structure is irrelevant. Further to this he criticised the tendency of readability formulae to deal with "only one side of the matching exercise, namely the book", and the variation in reading level across formulae.

Powers et al (1958) in a report about the standardisation of four adult readability formulae, concluded that they were rough estimates at best, and to say that one was better than the other was statistically hazardous, especially when the material on which they were to be used was different from that on which they were first computed.

Another way of measuring readability which was said to provide answers to some of the criticisms of formulae, is the cloze procedure. If a reader can replace omitted words successfully, a text is thought to be of a suitable level of difficulty. It has been stated (Bormuth, 1963) that cloze tests are valid and convenient measures of reading comprehension superior to multiple choice measures and that they are capable of predicting difficulty in text for a wide range of abilities, containing more variables than existing reading formulae (Bormuth, 1966). In addition, Gilliland (1976) too, was in favour of cloze tests as an alternative to readability formulae in grading tests, stressing the cloze procedure's reflection of " all the influences which interact to affect readability".

Together with arguments in favour of the cloze procedure as a measure of readability for children's reading material, came suggestions for its use as a method of assessing the readability of materials for adults (Pessah, 1975; Rosenkrantz, 1975). Pessah used the cloze procedure as a method for teaching community college students and mentioned its value as a device for measuring readability. Rosenkrantz referred to studies by Robinson (1973) and Sticht (1973) comparing the results of cloze tests with scores on standardised readability tests and multiple choice tests. The

results showed a similarity in rank order of difficulty, but the reading grade levels on the standardised tests were inaccurate. She also referred to suggestions by Fry (no date) that the cloze method is appropriate for assessing influences upon readability like word, sentence, style and subject matter difficulties and a study by Potter (1968) who emphasised the various textual elements covered by the use of cloze procedure.

In her own study where she sought to use the cloze method to match Adult Fundamental Education students to reading materials, Rosenkrantz (1975) found the procedure successful.

3. Standardised Tests for Adults.

There were few purpose designed tests of ability and reading in adult poor-readers when this study was begun and the need for them was widely felt among researchers and literacy scheme workers alike, since intelligence tests of reading achievement designed for children had been found inappropriate (Droege, 1970; Harris, 1971; Otto, 1972; Moorhouse, 1975; Rosenkrantz, 1975).

In Britain, however much criticised, standardised reading tests continued to be used, with their emphasis upon vocabulary, comprehension and word analysis (Moorhouse, 1975). In the United States, attempts were made to design tests to take account of the special experiences and situation of adult illiterates, but to this time, none appears to have been widely accepted.

One of the main criticisms of standardised reading tests, in addition to the fact that they seek to measure the abilities of individuals against the expected attainment of a certain sub-group of the population, at a certain grade level, (Rosenkrantz, 1975) was the doubtful discriminant validity of subtests (Farr, 1968). Nevertheless, as Farr and Roelke (1971) pointed out, in spite of the lack of supporting evidence for the existence of valid measures of subskills, such tests continued to be produced and used.

In a study which used three methods of assessment, a standardised test, teachers' evaluation and the evaluation of a reading specialist, they attempted to isolate the subskills

themselves. They found however that the different skills correlated more with each other when measured by the same method than when measured by different methods and concluded that the subskills had no discriminant validity. One suggested possible explanation was that the three elements being measured (vocabulary, comprehension and word analysis) are not separate subskills at all, the evaluation of reading performance being influenced more by the method of measurement than the skill being measured.

Another need which was discussed was for tests, capable of indicating the reading 'potential' of illiterate adults (Droege, 1970; Harris, 1971; Otto, 1972). Harris (1971), discussing the general agreement about reading disability being characterised by " discrepancy between potential and attained reading skills", pointed to a lack of consensus on measures of reading potential or expectancy and the expression of its relationship with reading attainment. He suggested that the measurement of potential should be an informed estimate of level of reading achievement in harmony with facts about an individual. The results of ability tests, he maintained should be compared with information about motivation, amount and quality of schooling, familiarity with standard English and adequacy of socio-cultural background.

He joined with Yule et al (1974) in criticising the use of IQ scores as the sole basis for estimates of potential based on the assumption that there is a perfect correlation between IQ and reading performance. This false assumption, Harris maintained, ignored among other things, characteristics like auditory and visual discrimination and the ability to attend and concentrate all of which are positively correlated with reading and which tend to grow with increasing age. A reading score, he stated, should express as accurately as possible the instructional reading level of an individual in silent and oral reading tests and be capable of discriminating between bright but underachieving students and those with severe reading disabilities.

The few existing tests designed for adult illiterates fell into two categories, reading tests and achievement tests based on

criteria other than reading. The methods of assessing reading performance were various including the use of cloze procedure (Rosenkrantz, 1975), chunking (Carver, 1970), tests of syntactic competence using sentences of varying complexity (Marcus, 1971; Cox, 1976) and multiple choice questions (National Centre for Health Statistics, 1976).

Rosenkrantz (1975) pointing to the need for adult reading tests to facilitate entry to reading programmes, used cloze as a means of matching students to materials. She found the procedure helpful for measuring the current status of students and changes over time, that the data obtained was of use for grouping students according to ability and that specific difficulties related to elements present in the text could also be diagnosed.

Chunked tests where passages were typed in groups of one to five words were also used (Carver, 1970; Carver and Darby, 1971). One in every five chunks would be substituted for by a new chunk, just different enough in meaning to be detected if the passage had been read and understood. This method was said not only to discriminate among individuals on reading aptitude and to provide an adequate measure of reading improvement, but to correlate with the measure of knowledge gained, the effect of pre-knowledge being reduced to a minimum. Carver's criticisms of commercially available tests were based on questions being capable of being answered without reference to the text and his opinion that responses generally indicated a mixture of pre-reading knowledge and post-reading knowledge together with comprehension. He was critical of cloze tests too, as having no value as indicators of the amount of comprehension taking place or improvement in reading. He saw chunked tests as answering these criticisms.

Based on the assumption that ability to understand syntactically complex forms is a measure of a good reader and that a sentence is the main meaning bearing unit in English two tests were designed to measure the ability of adults to read and understand a variety of syntactic structures in sentences (Marcus, 1971; Cox, 1976).

Marcus' test was designed for literacy students at intermediate levels and sought to measure literal comprehension of sentences in order to obtain indications of weakness in specific areas, including the ability to cope with word order, function words, inflections, derivational contrast, modification, prediction, complementation and co-ordination. The test designed by Cox was for adult beginning readers and included in its sentence types, active, question, negative, passive and passive negative structures, all of which were thought to give rise to difficulties in reading text. The test contained fifty key items, five in each of the above categories, each containing a complex and a simple sentence. The words used to construct the test items were selected from Laubach's list of those commonly found in an adult beginner's vocabulary. The test is designed for use with subjects pre-tested for oral proficiency.

There was also a test being developed said to be suitable for screening large numbers of people (National Centre for Health Statistics, 1976). It was designed to be as short as possible, lasting between five and eight minutes. The criterion used for literacy in the test was to be the level of achievement of an average child at the beginning of the fourth grade, the common definition in the United States, the test taking the form of a forty to fifty word passage followed by two or three questions in multiple choice format. There was a series of separately timed units to allow for difficulties experienced by some people in regulating their time, a "cutting-off" score, so that when a certain point was reached there would be no need to continue and a mechanism to ensure that an error in one part of the test did not necessitate a complete retest, each part being scored separately.

The material used in the test was said to take account of adult interests and include advertisements and instructions for appliances and equipment. It was found however, that passages with adult content were too difficult to provide differentiation among the bottom 40% of people tested. One of the main faults in all these tests was their inability to deal with complete non-readers or those with only minimum levels of literacy.

Attempts were also made to design tests of potential without the need to read, primarily for use as a means of testing performance in job skills for the purposes of employment. It might it was thought, be possible to design tests for people with very low reading ability which use some of the techniques embodied in tests of this kind.

Droege (1970) described two such tests, a Non Reading Aptitude Test and an achievement test, The Adult Basic Learning Examination. The Non-Reading Aptitude Test was oriented to the capabilities of the educationally disadvantaged. It provided a measure for occupational orientation and involved the evaluation of behaviour on the basis of observation of performance in standardised job connected tasks, commonly being used by employment agencies. The main limitation which Droege saw in the Adult Basic Learning Examination, a test of elementary literacy and numeracy skills, was that its norms, rather than being adult based were derived from the administration of the test to children. Elements in addition to adult based norms which Droege felt essential to an ideal achievement test for adults, were vocational and literacy related content, adult format, short time limit and accurate measurement over wide ability ranges. Many of the tests described above embodied one or more of these requirements but none satisfied them all.

4. Methods of Recording and Analysing Oral Reading Errors.

Numerous studies using error recording and analysis with children have shown 'error' to be an indicator of 'process'. That is to say, when an action is correctly and effortlessly performed, it is often impossible to describe in any detail what has happened, because of the integrated nature of its parts. If however, an error occurs, the process is arrested sufficiently for it to be possible to observe and categorise what was attempted, although in this case not achieved.

The recording and subsequent analysis of oral reading errors has been used to show what was being attempted at a semantic as well as a syntactic level and can point to strategies being used

and to elements of text which cause difficulties. Some of the results of such research have been outlined in Chapter 2.

The analysis of errors has a considerable history. Weber (1968) reviewed the literature to date and pointed out two different approaches to the analysis of reading errors; descriptive, where errors are viewed as mistakes, and linguistic, where errors are taken as evidence of a reader's strategies in processing text. In many of the studies she reviewed there were great difficulties involved in making comparisons between results, because the systems by which the errors were categorised were so diffuse.

In spite of the variations in method, all the researchers into reading error behaviour have gathered interesting information. Donald (1980) in his review of error systems, pointed out that the underlying rationale for this research remains constant. "An error is the product of a reader's interaction and processing of three basic sources of information; and the patterns in his errors reveal the strategies which are characteristic of his processing.

Goodman and Burke (1973) produced a complex 'taxonomy' on which it was decided to base the system of analysis used in this study. The system they describe although complex and cumbersome has the merit of being sufficiently clear in structure to enable its use for replication of results across data. Earlier studies which have provided valuable insight into the reading process and where individual methods have been used (Clay, 1968; Weber, 1970; Beimiller, 1970) are not comparable with any degree of precision with other research , since all used different methods. However, the general conclusions and the trends indicated from the results of these studies do bear rough comparison with Goodman's conclusions. He incorporated some of the findings into his own research.

Where early studies of syntactic acceptability simply examined appropriateness in the light of a passage, prior portion of a sentence or sometimes following portion, Goodman's taxonomy took in syntactic change in addition. He also placed emphasis on

the connection between syntactic and semantic acceptability stating:

> "The acceptability of the meaning involved in the OR (observed response) sentence is the concern. Multiple miscues can occur within a sentence. The reader has the option of correcting them or altering some of the material. When determining semantic acceptability, the entire sentence is included with all uncorrected miscues intact. (An entire sentence will be defined as a Minimal Terminable Unit).
>
> The structural organisation of a sentence forms the basis for semantic relationships. Meaning as a language system, is dependent upon syntax. It is the order of items and the use of inflection that indicate the meaning relationship of items. The syntactic order is separate from and can precede the meaning but the meaning cannot exist without the order. Semantic acceptability can never be scored higher than syntactic acceptability."

This system leaves no room for the possibility for instance, of responses being meaningful, but syntactically inaccurate. A correct verb, or an appropriate one, carrying the wrong tense but which could have been sufficient to provide basic meaning or 'gist' for the purpose of comprehension, according to Goodman's system must be unacceptable.

Faults in Goodman's system notwithstanding, it was felt to be the most thorough analytical tool available, when one was sought to deal with the data here. The Researcher used it selectively and with personal modifications as described in Chapter 4.

PART II. DATA COLLECTION METHODS.

The observation and collection of data about adult non-readers in this study precluded the use of formally balanced experimental research designs because of the socially sensitive nature of the subjects involved. Techniques for dealing with observational complexities such as these, for example participant observation and naturalistic enquiry, have been developed in social science for use in situations where more formal and parametric observation would be considered obtrusive and even counter-productive. More

recently these have begun to be adopted as effective methods in educational situations too.

Hogan (1980) in a critique of a paper by Nisbet and Entwistle (1973) made some fascinating comments about their suggestions that educational research is not 'pure' but 'applied' and that it should involve "careful systematic attempts to understand the educational process and through understanding improve its efficiency". Hogan's criticism was concerned with the potential limitations placed by the definition upon educational research, and he justified it by saying that "if we merely proceed with a naive faith in an established method, then our overlooked preconceptions and prejudices prevent us from from understanding properly....because they constitute the 'fixed horizon' beyond which we cannot see"., and "understanding then is the fusion of contexts which are different from one another (one's own and that which one is attempting to understand). No real fusion occurs when the methodological context of the researcher....diminishes the context to be examined or....when research becomes dominated by....authoritative tradition".

Recent research into the learning strategies of adult illiterates has used ethnographic techniques, with emphasis on naturalistic and participant observation. Such an approach takes account of the framework of operations of the subjects themselves, as a background against which to contextualise their behaviour (Hamilton et al, 1977). Hamilton et al suggest the development of "a dynamic tension between the subjective role of participant and (his) role of observer, so that he is neither one nor the other", and "is sensitive to the way he enters a setting and carefully establishes a role that facilitates the collection of information". He has to take decisions about how far to be involved in community activities because this will influence the way in which people react to him and "he tries not to be identified with any particular group".

Hamilton et al emphasised however that albeit the researcher "sympathetically empathises with the participants" he also monitors and tests his observations. He should try to

understand his actions from different perspectives and the tension between these different viewpoints keeps him from subjectivity.

A later publication by Hammersley and Atkinson (1983) includes many examples of experimental situations where such methods have been used to effect. Such "naturalistic" methods have developed and are now accepted more widely as a way of collecting data in certain social situations than when this study was begun. In fact recent studies involving the observation and recording of data about adult reading habits and problems, use it as an approach without which they would have been less likely to have taken place (Boraks, 1978; Boraks and Schumacher, 1981).

Boraks and Schumacher (1981) stated that establishing and maintaining the trust of the adult students they observed was a continuous task. They drew on a methodology outlined by Guba (1980) which was different from research based on surveys or tests which made subjects conscious of the research. Guba explained the kind of "naturalistic enquiry" he advocated as a "methodology uniquely suited to evaluation needs:... on the basis of the following purposes... to enlarge the arsenal of investigative strategies available for dealing with emergent questions of interest; to provide an alternative where it is impossible to meet technical assumptions of the experimental approach in the real world and... to avoid the implicit shaping of possible outcomes". He suggested that with respect to "external validity" each possible generalisation "should be treated only as a working hypothesis to be tested and retested". He advocated naturalistic enquiry finally as a "congenial and responsive mode of evaluation".

Boraks (1979) found that ethnographic methods allowed her to observe variables in a natural setting with an emphasis on appropriateness rather than control. Schumacher (1979) described data collection as consisting of "extensive field notes based on non-interfering systematic observations which describe events as they occur".

In choosing her methods, the Researcher was influenced by the approaches to classroom observation in Delamont (1973) and

evaluation methods of Parlett and Hamilton (1972) as being the most relevant available; none of the above-mentioned research having yet taken place. Since then, as has been discussed, others have used similar research styles.

SUMMARY.

The literature reviewed in this chapter has dealt with areas of activity directly related to adults who have reading difficulties and wish to correct them. To begin with, it concentrated on what is known about adults in learning situations; the importance of attitude rather than ageing to learning.

Next, research was described providing information specific to the reading problems of illiterate and semi-literate adults. Here there was emphasis on deficiencies in the integration of skills and
on lack of flexibility. The most recently available information has emphasised the importance of awareness of the need for meaning in text. This has been found lacking in poor readers.

There has also been concern about the measurement and testing of adult performance in reading, stressing the need for adult rather than child based criteria of progress and potential and the difficulties hitherto found in producing suitable tests. The recording and analysis of oral reading errors has been mentioned here too, since although it is a laborious procedure, it has provided many insights into the nature of reading and was used as the main data gathering procedure in this study.

Finally, there is reference to the need for flexibility and involvement when collecting data about the reading and learning processes specifically of adult non-readers.

CHAPTER 4. DESIGN OF RESEARCH: MATERIALS AND METHODS USED.

SECTION I. INTRODUCTION.

1. Choice of Method.

On the assumption that the reading process is an integrated whole and that it could be difficult, not to mention undesirable to separate the individual skills, some way of observing these skills together in a simultaneous series of processes was sought. Whatever method of observation was chosen had to be capable of producing data which could be described broadly as a whole and also be broken down for the purpose of identifying specific problems.

It was decided therefore to use the recording and analysis of oral reading errors as a way of gaining access to strategies used and interactions at work during the reading process, through close observation. The decision to employ this method was made partly because of the Researcher's own previous experience of using error analysis (as noted previously, page 5) and partly as a means of providing information which could be compared with research done by others in the past with children. Error analysis was felt to have the additional advantage of being a useful exploratory technique for probing strategies, incorporating a systematic layout of procedures. Passages of text would be chosen to provide context and opportunities for the integration of skills.

There was some initial hesitation about the use of oral rather than silent reading as a means to this information, although similarities between the two have been emphasised. Subjects could be nervous at having to read aloud. There might be a slowing down of speed and oral reading could well be unrepresentative of reading in more natural situations, which would probably be silent. Oral reading can also give rise to an

artificial need to concentrate on individual words for reproduction instead of giving prominence to the extraction of meaning. Such interference might certainly be possible in the behaviour of fluent readers; but here, given that most subjects experienced problems at a basic level of text processing and that a paramount aim was to observe and record 'strategy', the use of oral reading was considered to be worthwhile.

Another method which was considered as a way of illustrating difficulties was cloze procedure, as being a non-oral way of observing strategy. This was rejected on the grounds that although it can certainly give clues to comprehension difficulties and the general extraction of meaning, it does not provide a means of dealing with more 'concrete' problems of people with difficulties at the word and letter level.

It was thought too, that simple measures of comprehension would be needed which did not require an ability to write or to read complicated instructions.

It was decided, in order to gain some insight into the relationship between reading and language skills and by way of adding a dimension to the results of direct observations of the reading process, to use some rough indicators of oral language skill and short term memory.

Certain difficulties presented themselves from the outset in attempting this piece of research. Barriers were in existence to gaining permission to observe appropriate samples of people and there was also at the time a lack of existing relevant means of assessing reading difficulty of text for adults. Another problem which was forseen at the outset was the need to provide interesting reading material for use in the observations and to find adequate ways of grading it.

2. Obtaining a Sample.

2.1. Aim.

Initially, it was hoped to obtain three different samples; a sample of illiterate and semi-literate adults, a sample of literate adults with whom to compare their scores on a short

term memory scale and a sample of children for comparison of reading errors. The most easily accessible group of adults with reading difficulties were those enrolled in a local adult literacy scheme, although it was realised they might not be representative of the illiterate population as a whole. Approaches were made to a local technical college and also to the Worker's Education Association for access to a sample of literate adults with similar social backgrounds to those of the main sample, and for the sample of children it was decided to use a class of 12 year old children receiving remedial reading tuition in a local secondary school.

The processes and interactions involved in obtaining samples of people which were finally used in the study are thought to be relevant to the research as a whole in terms of the resulting modifications to personal approach, experimental design and the use of experimental materials, not to mention the overall timescale of the study. They are described in some detail below.

2.2. Preliminary Talks.

Initial contact with the Literacy Scheme in Lothian Region was first made in September 1975, at the time when the local education authority was setting up literacy provision in response to government policy and pressure resulting from the BBC's telephone referral system. An Organiser had been appointed and a weekend residential course for intending tutors had been arranged. The Researcher obtained a place on the course and there met the newly appointed Organiser. Contact had therefore already been established, when in Spring 1976 an appointment was made with the Literacy Organiser to discuss the possibility of interviewing a sample of students enrolled with the scheme.

An outline of the proposed research, describing its basic aims, was provided for the Organiser - in such a way, it was hoped, as not to arouse hostility but emphasising the general absence of information in several areas related to adult literacy. The Literacy Organiser herself agreed that such knowledge was lacking and that it would fulfil a useful purpose. She had certain reservations however, about the practical

nature of the intended observations, adopting a protective stance with relation to the students. It was felt by the Literacy Organiser, that allowing contact, by someone not involved in the Literacy Scheme in an official capacity, with a large number of participants might infringe the confidentiality of the scheme and possibly damage the integrity of the organisation thereby adversely affecting student progress.

There was also concern on the Organiser's part about the Researcher's lack of personal involvement in the Literacy Scheme, other than in a purely research capacity. It was suggested therefore that the Researcher become a literacy group tutor and perform any necessary observations within the confines of her own allotted small tuition group. This, it was felt would satisfy problems of possible lack of trust on the part of potential subjects. Having understood that a sample of the size suggested would be inadequate for the purposes of the study, the Organiser then agreed in principle to allow interviews with larger numbers of adults learning to read in group situations; it was not considered desirable for interviews to be held with students taking part in 'one to one' tuition because of what the Organiser saw to be the greater vulnerability of both students and tutors in these situations. There was concern on the part of the Researcher that, should observations of students taking part in one to one tuition be out of the question, the results of any observations would be further limited in the possible extent of their application to the problems of adult illiterates as a whole, since the sample would not be representative of the Literacy Scheme's total enrol ment. It was considered however, that the intrinsic validity of the results would still prove to be of sufficient value to justify the continuation of the study in the light of the imposed restrictions.

2.3. Conditions.

Access to the required sample was finally dependent upon the experimental design being approved by the Literacy Organiser herself. It was to take account of the following stipulations:

1. The experimental procedures should be in no way upsetting to the students or detrimental to their progress or motivation in learning to read.
2. The permission of all parties involved in the observations should be obtained and they should be made aware of the purpose of the research.
3. The reading materials used should take account of the interests and aptitudes of the individual students involved and where possible be selected in consultation with each tutor.

It was further suggested that the Organiser's own willingness to cooperate would be increased by the Researcher's active participation in the Literacy Scheme in something other than a research capacity, a suggestion which was complied with.

2.4. Participation in the Literacy Scheme.

In August 1976, a draft experimental design was submitted to the Literacy Organiser and the possibility of access to a sample of students was again discussed. At this stage, the specification for the intended sample was that it should contain illiterate and semi-literate students, but not those who were felt to have spelling problems only, or those known to have congenital learning abnormalities. The Researcher's willingness to become involved in literacy work either as a voluntary tutor, or in some other capacity was also reaffirmed.

2.4 a) Group Teaching.

As a result of this meeting, the Researcher was allotted to a group as a volunteer assistant. The group was attended once a week for approximately six months, during which time the preliminary recording of the oral reading errors of two of the group's students was attempted, using materials suggested by the group tutor as being appropriate to their interests and reading abilities (See Appendix I. Preliminary Study With Two Literacy Students). At the end of this period, the group's paid tutor was asked to join the Literacy Scheme's tutor training scheme and

decided to give up her post in order to do this. The Researcher was then asked to continue with the group on a paid basis until a new permanent tutor could be found. The group's meeting place was changed from the previous tutor's home, where it had met hitherto, to the Literacy Scheme's headquarters, where the Researcher continued to teach weekly for another six months.

2.4 b) Tutor Training.

When a tutor had been found to adopt the group permanently, the Researcher was asked to become a member of the tutor training scheme. She then took part in two ten-week training courses attended by prospective literacy tutors. These were people who had volunteered their services to the scheme, had been interviewed but not yet given pupils. The training team met about once a week for a month before each training course, to discuss plans and co-ordinate sessions; the courses themselves being divided into sessions on several different topics to be taught on separate evenings. Examples of the topics were Counselling, The Social Nature of the Literacy Problem, Early Reading Tuition, Writing and Spelling. Most sessions were taught by two 'trainers' with the others in attendance for support and individual discussion with participants. The Researcher's involvement in this capacity lasted approximately eight months during 1977-78. During this time, working relationships were established with members of the Literacy Scheme staff involved in training and contact made with some of the tutors who were later asked to co-operate in the research.

2.5. Arranging Contact With Tutors.

Contact was again made with the Literacy Scheme organisation in Spring 1979 and the possibility of arranging observational visits to literacy groups was discussed. The Organiser was asked for a list of tutors and permission to contact them by telephone. She was reluctant to grant permission, reiterating her original fears about the possible violation of confidentiality. After further persuasion, and the Researcher's pointing out the amount of time involved in the preparation of materials based on her

initial willingness to assist, she agreed to allow contact with the tutors, insisting however that they should be approached by letter rather than by telephone and consulted on their feelings about group visits. She was particularly concerned that the purpose of the visits be explained both to the tutors and to any students involved and that details should be included in the correspondence. She wished personal contact to be initiated by the tutors and to this end, suggested that the letter should finish with a request for tutors to contact the writer rather than allowing a 'follow-up' telephone call from the Researcher. It was suggested that the letter be duplicated and circulated with routine Literacy Scheme correspondence to the tutors. Another meeting was arranged at which the Researcher was to produce a draft letter for the Organiser's inspection, before it was finally sent.

The letter (see Appendix II) was finally sent to twenty-two tutors, chosen by the Scheme Organiser as being experienced and having taught their groups for some time. A list of the names and addresses of the people involved was then forwarded to the Researcher with a note giving permission to contact the tutors by telephone should they fail to respond.

It later became possible with the help of an assistant Organiser, to contact a further group of six tutors who had not appeared on the original list.

2.6. Interviews With Tutors.

Of the twenty two tutors contacted, only three telephoned in response to the initial letter. When all were telephoned subsequently however, only four expressed reservations about visits to their groups and two could not be contacted by telephone. Most apologised for failing to make contact, said they were pleased to have been telephoned and agreed to being visited at home. Of those who were unco-operative,, one was about to stop teaching, two said they were too busy and had no time and one objected to her group being used as 'guinea-pigs'. This last incidentally was the tutor of the group previously taught by the Researcher herself. Those who did agree to help were all pleasant and interested.

Sixteen willing tutors all female, were visited at home in the period May to September 1979. The aims of the study were explained in as straightforward a way as possible. They were told that during group visits, the students would be seen individually, where possible in a separate room from the rest of the group to ensure privacy and that they would be asked to read prepared texts aloud while their errors were noted. They were told that the aim of the study was to find out about specific reading problems and difficulties inherent in text.

They were shown samples of the stage 1 oral reading material and asked their opinions about its difficulty with reference to their own students. They were also asked questions about their students and their replies entered on a form (see Appendix III). The tutors were not however, at this stage told about the intended use of the British Ability Scales. It was felt that these intentions might be misinterpreted, with possible adverse results in relation to the hard won initial permission for the observations.

Arrangements were then made with each tutor, for her to discuss the intended observations with the students themselves, and to ask about their willingness to co-operate on an individual basis.

The methods used to gain the trust of the tutors sufficient to obtain access to their groups had the simultaneous effect of stimulating confidences from the tutors, other than the formal responses required in answer to the questionnaire. Tutors spoke about their personal feelings with regard to their tutor role, illiteracy in general and their experiences of dealing with the organisation of this particular literacy scheme. Notes were made after each interview was over. It was thought to be useful illuminative data, capable of providing insights into the working of the scheme, effectiveness of teaching and the attitudes and consequent relationships of the tutors.

SECTION II. SELECTION AND DESCRIPTION OF SAMPLES.

1. Selection of Sample.

1.1. Sample of Adults.

At the time of contacting the tutors, it was not known what the final size of the sample would be. Numbers in groups varied (see Table 4.1.) and the number in each group to whom access was granted was subject to a decision by each individual tutor. It was also impossible to establish reliably at this stage, what level of literacy attainment each student had reached. The Literacy Scheme routinely used the Holborn Reading Test (1948) to screen students on entry, but tutor's opinions sometimes differed from the scheme's assessments. This lack of control over the initial selection of a sample affected later decisions on the administration and analysis of the data collected and indeed the limited number of available subjects made even a representative pilot study out of the question.

Because of what was understood to be the sensitive nature of approaches made to Scheme personnel (organisers, tutors and students), together with the Researcher's doubts about the possibility of objectivity being used in the process of selection, it was felt inappropriate to stipulate strongly, preferences for kinds of subject. Also, the limited numbers of students from whom selection was possible had made necessary a flexible and exploratory approach, to the extent of including students whom in the initial research intentions would almost certainly have been left out: it became unrealistic to make assumptions about what sample was available. The only students who were finally excluded were those with overt physical and mental retardation or abnormality, such as Down's syndrome.

All the tutors interviewed agreed to allow access to their groups, although one or two suggested a student who in their judgement was too sensitive to be interviewed. Other students who were thought unsuitable for observation were those who had recently joined a group and were thought not to have had an opportunity to establish sufficient trust to be unaffected by a visit from an outsider. Tutors varied in their judgement

in this respect however; where one was reluctant to allow a visit at all to a group on a night when there was a new student present, another, having received an unexpected new student suggested that she be interviewed straight away, leaving the tutor free for the rest of the group.

1.2. Sample of Children.

Because of the 'adult content' of the selected reading passages, it was decided that they could not profitably be used with children younger than those in the first year of a secondary school (12 years in Scotland). A secondary school was chosen in one of the less affluent areas of the city, similar in character to those lived in by many of the Literacy Scheme participants. The head of the remedial department at the school agreed to allow access to three small classes of first year pupils, all of whom were judged to have some degree of difficulty in reading. Twenty five of these children took part in the study.

2. Description of Samples.

2.1. Adults.

2.1 a). General Nature of the Sample.

Altogether, 59 literacy students, 35 male and 24 female, took part in the study. The subjects were aged between 18 and 60. Employment information was available for 43, of whom 34 were in full-time jobs. They had been attending tuition from a few weeks to as much as five years. Thirty two of these subjects took part in both stage I and stage II of the observations, seventeen took part only in stage I and eight only in stage II. Fourteen dropped out while the study was in progress.

Because the administration of the materials took account of the prevailing social conditions, because the content of the sample was unpredictable and also because there was a certain amount of movement in and out of the study while it was in progress, the amount of material administered to individual students was not consistent. The greatest variation took place in the administration of the passages of text and the

distribution of people and passage is shown in Figure 4.2. Comments about numbers of subjects attempting other scales, since they were not so variable, appear at the beginning of the relevant results sections.

Most of the adult students were said by their tutors to attend tuition regularly; only one was said to be unreliable in this respect.

2.1 b). Literacy Scheme Reading Ability Classifications.

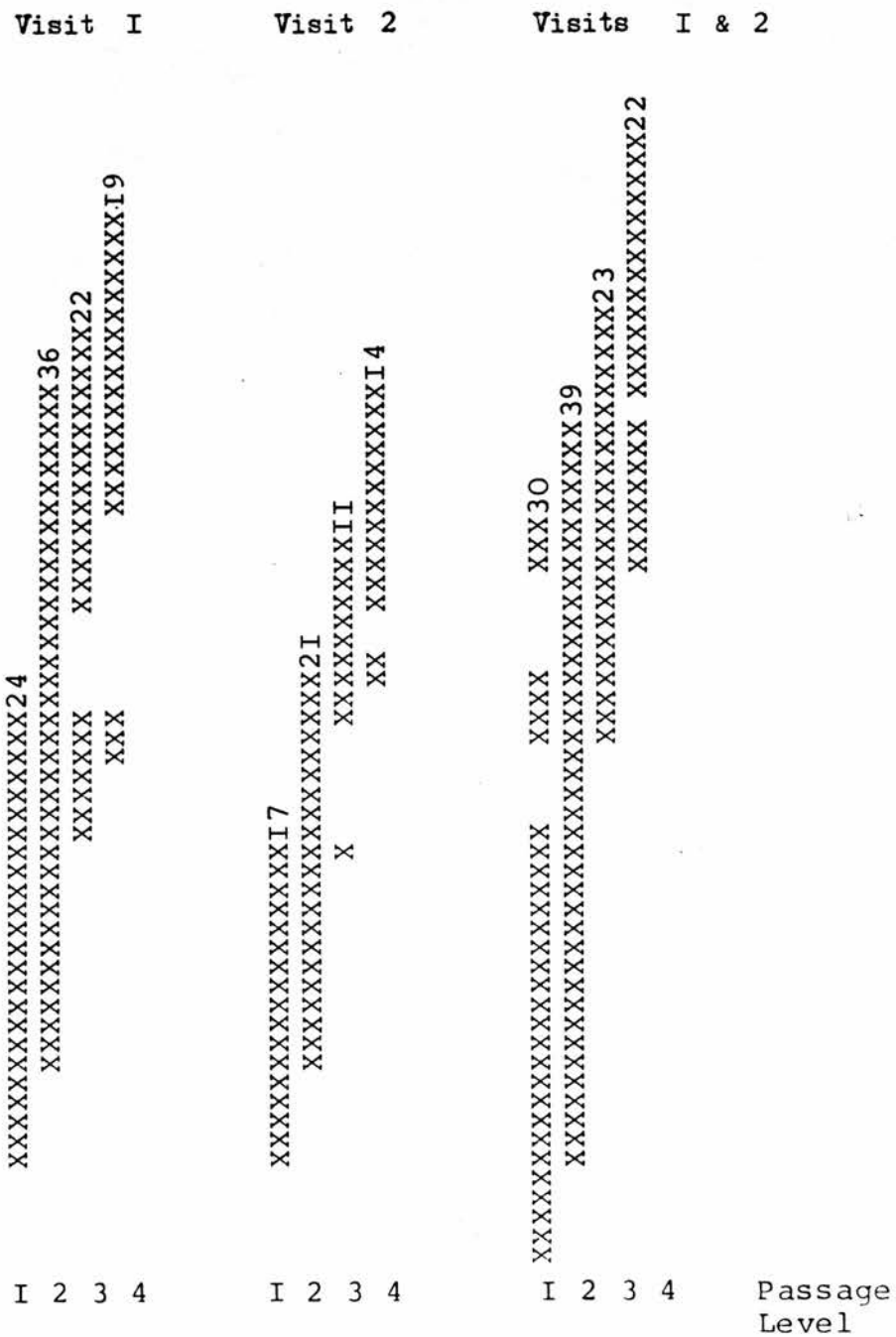
The 59 Literacy Scheme students were divided amongst thirteen teaching groups. The groups were classified by the organisation under seven headings ranging from 'spellers' to 'slow learners' (see Table 4.1.). All but one of the group teachers were female and all had teaching qualifications and were employed by the local authority community education department for part-time work.

Table 4.1. Literacy Scheme classifications and numbers of subjects overall, stage 1 and stage 2.

GROUP		NUMBER OF SUBJECTS
1	Advanced Spellers	5
2	Spellers	11
3	Spellers and Mid-Readers	0
4	Mid-Readers	10
5	Beginners and Mid-Readers	5
6	Beginners	15
7	Slow Learners	13
Total:		59

Note: Classifications 2 and 4 included two teaching groups, 7 included three and 6, four.

Fig. 4.2. Passages read by adult sample on two separate data-gathering occasions.



Given the relatively small expected final size of the sample, it was realised that dividing it into groups of equal numbers for each classification might well prove to be impossible and that this could have implications later for the techniques used to analyse results. It was intended in any case to further group the sample on paper in ways other than those related to reading prowess as set out by the Literacy Scheme, after the initial observations had been made and data collected.

2.2. Children.

The sample of children who took part in the main study was made up of twenty five twelve year olds, sixteen boys and nine girls. All were in their first year at secondary school and in the remedial department. Twenty two took part in both stages of the observations and three were available only for stage I.

SECTION III. DESIGN AND SELECTION OF MATERIALS.

1. Structure of Administration.

The collection of data was envisaged to be in two stages and the materials to be used were selected and designed on this basis. There were several reasons for this. It was not known initially how many adult subjects would be available and, given the warnings of the Literacy Organiser, how they would react to being interviewed and to information being gathered about their reading activities. It was therefore considered wise to leave open a) the possibility of modifying material used in the first stage and introducing other material alongside it in the second stage; and b) the possibility of using information gained to design new material for use in the second stage.

The Researcher's experience with two students observed previously had indicated that the gathering of information of this kind would be a time-consuming and laborious exercise. Another reason for revisiting the students would be in order to divide up the time necessary to gather viable quantities of data. As it turned out, there was no need to modify the material for

the second stage and therefore the two stages effectively became one for the purpose of the analysis.

2. Design of Tutor Questionnaire.

The questionnaire (Appendix III) was designed to provide information for more than one purpose. Questions were asked on topics about which there had been disagreement in the literature. Such questions dealt with tutors' opinions of student intelligence and verbal skills and were included for comparison.

Questions about student potential, progress, motivation and interest were included to provide clarification, support or otherwise of claims made about students by Organisers during tutor training and in scheme publicity. Most questions were also selected for the potential comparability of tutors' opinions with the results of tests to be used later in the study. It was hoped thereby, to provide as full a picture as possible of student attendance, attitude, behaviour and progress while taking part in tuition.

3. Initial Selection of Passages.

3.1. Source.

It was decided, in the light of previous experiences with passages from mixed sources (see Section II, 2.4 a)), that if a common source of textual material could be found, from which to select passages at a variety of difficulty levels - say from a reading age of 6+ at level 1 to 13+ at level 4, several important variables could be standardised: the purpose for which they were written, the 'difficulty' level and the overall style of presentation.

Three 'light' weekly newspapers, Titbits, Reveille and Weekend, which fulfilled these criteria were selected as possible sources of reading passages of varying length and level of difficulty with subject matter of varied and fairly lighthearted interest and written for adults. This provided a single set of materials for use with subjects having a wide age, ability and interest range.

3.2. Subject Matter.

In order to reduce the variables still further - especially in the light of research with adults showing that 'interest' plays a large part in determining successful performance - and so that none of the passages would be esoteric in any way, six subject areas which were felt to be of possible general interest were chosen as a guide to selection: Sport, Food, Health, Jobs, True Story, and Animals.

3.3. Grading For Difficulty.

When searching for a means of grading texts, it was felt initially that readability formulae, which are based on child-centred norms, were intrinsically unsuitable for the purpose of grading material for use with adults; particularly since no account is taken in the calculations of textual elements like style, content and the frequent difficulties caused by single syllable words.

An alternative method of grading texts, the ranking of passages by experts, was also considered. One facet of adult literacy work at the time these observations were planned, was the absence of just such expertise, so that any ranking by its nature could have been arbitrary and as prone to faults as the the readability formula. Nevertheless, passages were distributed for ranking amongst all the participating adult literacy tutors, but unfortunately such a small number were returned that it was not possible to use this method.

The Fogg readability formula was chosen then as being a simple guide to textual difficulty. It provides, by means of a series of easy calculations, a grading approximating to the expected mean reading attainment of a group of children of a given age. It is based on passages of one hundred words, sometimes selected from longer texts; although the same calculations can be used with shorter passages, possibly with less reliability. The number of sentences is divided into the 100 words, the number of words with three or more syllables is counted and added to the total and multiplied by 0.3 to give an

American grade level. By adding 5 to this total, a British 'reading age' is arrived at. All the passages graded by this method were shorter than 100 words; consequently, calculated level was not taken to be an exact indication of potential difficulty. The number of words with three or more syllables was left unadjusted, regardless of passage length. It is possible that the lower occurrence of polysyllabic words in these passages compared with longer ones of the same difficulty level, cause the resulting readability levels to be on the low side. The final figures were rounded up or down to the nearest whole number, since greater detail was felt to unnecessry in this respect.

The lack of information about what constitutes 'difficulty' for adults of the kind in the sample ruled out the use of any more precise indicator of adult reading level. With the readability formula as a guide however, it would remain possible to approach the design of a more effective system through the information obtained during the analysis. The design of the materials and the resulting data, when analysed, would, it was hoped, allow for the discovery of textual difficulties other than the sentence and word length.

3.4. Choice of Passages.

A batch of periodicals was searched for articles of varying length and apparent difficulty in the six chosen subject areas. About 200 passages were chosen, roughly 30 in each subject area and all were graded for difficulty using the modified Fogg formula (see 'Grading for Difficulty' above). Samples of the passages used appear in Appendix IV.

It was decided, for ease of administration, expected time available at interviews and other practical considerations, like the concentration span of the potential subjects, to divide the possible readability levels, which appear on an ascending scale of yearly progress from say 5 years to 13+, into four broader bands of difficulty. It was also decided to add an additional check to the criteria built into the formula, that of passage length, as a means of further standardising the nature of the

task. The resulting set of passages were categorised as follows:

Level 1	Below 8.0 years	Up to 25 words
2	8.0 - 9.0 years	25 - 50 words
3	10.0 - 12.9 years	50 - 75 words
4	13.0 - 15.9 years	75 - 100 words

All the 200 passages initially selected were listed according to topic, length and difficulty. The passages which were finally chosen were those in the lists which satisfied the criteria specified as nearly as possible for each level. Where there was no satisfactory passage, for example in terms of length, those available were carefully examined for places where they could conveniently be altered, while preserving an overall sense of completeness. Where there was no shorter article of appropriate level available, a text would be selected from a longer passage. In no case was a text lengthened to satisfy the requirements. Table 4.2 lists chosen passages according to topic, readability level and length.

The divisions between the four levels were chosen to correspond approximately with internationally accepted levels of literacy prowess: illiterate, semi-literate and functionally literate (Chapter 2, Section I). There is more than interpretation of 'semi-literate' available, 6.5 - 9.0 years or 7.0 - 13.0 years, performance above the 13.0 year level being termed 'functional literacy'. Two semi-literate stages have been used here.

4. Comprehension Questions.

Comprehension questions were designed to give some indication of the extent to which the content of a passage had been understood, and to ascertain how far comprehension was related to levels of accuracy in oral reading. In order that the questions should be a test of understanding, rather than memory, the subjects were permitted to refer to the passages when answering.

Three questions were asked after each passage read and in each set, two took the form of direct questions prefaced by 'who', 'what' or 'where' and the third was an interpretive

TABLE 4.2. Topic, Readability Level and Length of Chosen Passages - Stage 1.

	TOPIC											
	True Story		Sport		Health		Jobs		Animals		Food	
LEVEL	RL	WL	RL	WL	RL	WL	RL	WL	RL	WL	RL	WL
1	6.8	6	6.4	7	6.2	12			6.2	8		
2	9.7	46	9.2	40	9.6	43	9.6	53	9.2	39	9.8	32
3	11.2	69	12.6	59	11.0	58	11.7	69	10.7	60	12.0	76
4	14.8	83	15.1	94	13.0	98	13.5	81	13.3	92	13.5	81

RL = Readability Level
WL = Word Length (number of words)

question of the 'how', 'why' type. The third question was designed to allow scope for extended explanation should a subject be inclined to give one. None of the questions could be answered by 'yes' or 'no' alone. The comprehension questions used appear in Appendix V.

5. British Ability Scales - Tests of Short Term Memory, Word Reading and Definition.

In the light of difference of opinion when the study was begun regarding intelligence levels and aptitudes in areas other than reading (see Chapter 2, Section I), it was considered necessary to investigate whether reading difficulties in the sample tested were specific or could be symptomatic of more general problems. An objective way of measuring language skills was utilised.

The British Ability Scales (1978) was selected as being a recently published test, standardised across a wide age range. Unfortunately, the highest age group covered by the test is 17+ and many of the subjects in the sample of adults being used, were older than this. However, it was decided that this should have little effect on the results as there are no expected age grades after 16+. There was at the time and remains to the writer's knowledge, no existing test designed for adults which would be more appropriate.

The scales included the measurement of short term memory by means of digit recall, reasoning, retrieval and application of knowledge: all of these can be seen to have some relevance for the reading process. In selecting scales to be used, from the very wide range available, certain criteria had to be fulfilled. The tests had to be relatively short, to fit in with the time available for administration. They also had to be capable of giving an indication of performance in reading related skills and to be capable of comprehensible explanation to the people with whom they were to be used.

Scales were finally selected which would give a general idea of ability in several areas. Two verbal scales were chosen; word reading, word definitions; and one test of short term memory;

recall of digits. Copies of the scales used appear in Appendix VI.

Word reading was chosen as an indication of how far a subject was capable of reading words in a list out of context, and whether success at this task related to techniques in use in reading continuous text. The definitions scale was chosen as being an indication of a subjects ability to use language orally to explain meaning. The word reading test chosen was one which used the same vocabulary as that in the defintions scale. It was administered first.

The combined results would be capable of showing how far a subject could define or explain vocabulary he was capable of 'reading'.

The short term memory scale was chosen as a general measure of an ability which plays a part in the reading process.

Short forms of all the tests were chosen because of the limitations on time imposed by the practicable length of each interview. It was realised at the time that the standard error of measurement was higher for the short forms than for the complete scales, but the intention was to treat all scores with caution and to use the results simply as a general indication of ability in a given area.

When it came to administering the scales, there were several problems to overcome. In the face of the restrictions on the research design stipulated by the Literacy Organisers (see above) and in the light of the very genuine sensitivities assumed to be characteristic of the intended subjects, it was felt that the literacy students might well object to or be suspicious at least, of the Researcher's intentions if they supposed that their 'intelligence' was being measured. The scales therefore had to be capable of explanation in terms compatible with the measurement of reading difficulties and the difficulty of text at least as viewed by the participants. The explanations had also to be capable of comprehension by people with no experience of systematic research or what that involves.

6. Metalanguage.

To add a further dimension to the other measures being used in this study, it was decided to include some questions about the metalanguage of reading which would give an indication of subjects' ability to describe certain elements of text. The scale was made up of nine questions divided in to four groups:

a. units of text (sentence, word, letter);
b. simple punctuation (full stop and comma);
c. orthography (recognition of upper and lower case and capitals;
d. less common punctuation (apostrophe, inverted commas).

Apart from the first group (a) where recognition and identification only, were being tested, subjects were asked to identify by naming, each item, and then to describe its functions.

The questions were designed in a form which would not be offensively simple to the more competent subjects. For instance, the question "What is (show me) a sentence/word/letter?" as used in some of the previous studies with children were not used. A full list of the questions appears in Figure 4.3. Answers were marked wrong if they did not give a clear idea of function. On the other hand subjects were not penalised for poor expression.

The form of the questions asked in section (a) allows for the answer to be 'wrong' and yet still give an indication of understanding of the kind being measured. For instance the answer to a question "How many letters?" might give the wrong number of letters yet still indicate a subject's understanding of what a 'letter 'is.

SECTION IV. ADMINISTRATION OF RESEARCH.

1. Interactions with Setting.

1.1. General Considerations.

The social setting in which this study was conducted, having already played a part in the getting of a sample of people to

Figure 4.3. Metalanguage questions.

a. Units of text - sentence/word/letter.

1. Show me the longest sentence. Identify it with the beginning and the ending word.
2. Show me the longest word.
3.a. How many letters does it have?
   b. Can you show me a two letter word?

b. Punctuation.

4. What is this? (full stop)
   What does it do? Why is it there?
5. What is this? (comma)
   What does it do? Why is it there?

c. Orthography.

6. Upper and lower case.
   Can you show me a small one the same as this? (any capital letter)
7. Capital.
   Show me a capital letter.
   What is it used for?

d. Punctuation.

8. Apostrophe.
   What is this?
   What is it used for?
9. Inverted commas.
   What are these?
   What are they used for?

observe and also in circumscribing the initial selection of materials to be used, continued to be a major influence throughout the collection of data. The Observer continually modified her plans to take account of the surrounding circumstances (see Figure 4.4).

The attitude of the literacy organiser concerned, at the beginning of the study had delayed its inception. Notwithstanding, there was, during this study a need to deal with people, both teachers and students, who were less than secure in what they were doing and who were as a result, sensitive to criticism. Much of the time all concerned were 'students', since for those who were teaching there was no previous first hand experience of a similar kind. For the Observer herself no documented studies of close observation of adult non-readers existed on which to plan the basis of data collection or with which to compare results (see Chapter 3, Section IV).

The effects of the above on the overall conduct of the research and in particular on the methods used to gather data, were far reaching. The time scale which had been originally predicted had to be considerably lengthened and initial attempts to build into the collection of data consistency amongst certain variables had to be all but abandoned. For instance, it was not possible to spend an equal amount of time with each subject and was regularly impractical to try to collect similar amounts of data.

The conditions under which the data was collected from the students, are described below; data collection from tutors is described elsewhere in this section.

1.2. Group Visits.

1.2 a). Time scale

The visits to the literacy groups for the collection of data took place between November 1978 and March 1980. In all 13 groups were visited in two stages. The number of times each was visited varied from about four to eight or ten at each stage, depending on the number of students being seen and the length of time taken to interview each one.

Figure 4.4. Plan of Materials and Administration.

FIRST VISIT

Reading Passages:	24 passages made up of 4 levels of difficulty; 6 passages at each level; 6 topic areas; 2 groups of readers (A & B) at each level.
Comprehension questions:	3 after each passage
British Ability Scales:	
	Word Definitions Scale) using same
	Word Reading Scale) word list
	Short Term Memory - recall of digits

SECOND VISIT

Reading passages:	subjects reading group A, now read B Subjects reading group B, now read A
Comprehension questions:	first visit
Metalanguage questions:	questions about the language of reading

It was not possible to see more than two students at each session, which lasted two hours, because of the time involved in administering the materials. Quite often, only one student could be seen, and once or twice one student was seen over two sessions. All this, together with the difficulty of making consistent observation arrangements, took time.

1.2 b). Accomodation.

Difficulties arose about getting a private place in which to conduct interviews. Often an interview would be interrupted by others needing to use the allotted facilities. One tutor very kindly moved out of her own room so that an interview could proceed and yet on other occasions there would be no separate accomodation available so that an interview would either have to be conducted in the same room as the group session or cancelled. On occasions like these there appeared to be no choice but to continue, with the permission of the tutor concerned, since the time schedule had by this time already become lengthy. The main disadvantage of conducting an interview in the group situation was the possibility of being overheard by other students. Any remaining 'clinical' element in the observations was thereby further lessened and more important, students became more inhibited in their behaviour when others were present.

1.3. Tutors.

The tutors on the whole were very friendly. They were encouraged to indicate any inconvenience caused to them by the observations and to comment on the behaviour of the Observer should it appear inappropriate at any time. They were regularly consulted about the observations of their groups and the Observer's dealings with their students. A mutual trust did appear to have been established. Tutors asked the Observer's advice about teaching, expressed their despondency about lack of progress, asked for impressions of certain students, recounted anecdotes about them, their families and the Literacy Scheme.

Most of the tutors were involved emotionally with the job of literacy tutition and were very attached to their students as individuals, so that in discussions with tutors, efforts were made to emphasise the individual personalities of the students. Attention was deliberately focussed by the Observer on the group situation from the point of view of each individual tutor; efforts were made not to imply that any tutor was simply one of a crowd. On the other hand, the Observer's own dealings with several groups within a short space of time seemed to provide an important contact point for many of the tutors. They found reference to other groups and tutors helpful, especially where similar experiences had taken place. Several commented that these discussions broke down feelings of isolation they commonly experienced. An example of this was a tutor who had lost three students all at once from her group (they dropped out) and felt depressed about this. She considered it to be her fault. It was possible for the Observer to reassure her with stories of other tutors with similar experiences. Strenuous efforts were also made on the part of the Observer not to be seen as a visiting 'expert'. It was felt to be extremely important to reduce as much as possible any distancing effects resulting from such a view. The nature of the research meant that honest responses were needed from the participants, and these based on trust, if a valid picture were to be obtained.

1.4. Students.

Efforts were made throughout the course of the observations, to put students at ease, to establish friendly relations and to reduce rather than emphasise any role distance between them and the Observer, without being sanctimonious or condescending. Naturally there were limits to the extent to which these aims could realistically be achieved. The Observer constantly sought middle-ground in her relationships with subjects between an over-enthusiastic and non-credible alliance with the student and the role of superior or even 'judging' outsider. She was aware

that her social demeanour was of the utmost importance for the success of the research. She was also aware of the importance to the subjects of the learning process in which they were involved.

Attention was paid to students' reactions both verbal and physical at every stage of the collection of data and their behaviour was used as a guide for instance, to when to allow a subject to proceed in spite of difficulties or when to insist that he stopped his task. Decisions made on this basis were rarely clear cut.

The fact that the student and the Observer often shared private accomodation together meant that it was extremely important for a relaxed atmosphere to have been created before reaching the room in question. The Observer would chat to each student on route to the accomodation perhaps commenting on the location of the room or the amount of time the interview would be expected to take. On arrival at the destination the Observer would try and ensure that the subject had a comfortable chair and would explain again in more detail, the purpose of the observations; within the limits of what was felt to be a subject's understanding. All records had to be made in writing, since the Literacy Organiser had prohibited the use of a tape recorder. All written notes were taken in full view of a subject, with the intention that she/he feel a part of the co-operative effort and in no way being tested or measured.

Subjects were allowed as much time as possible to discuss their particular difficulties or have points explained. These discussions were not always related to the task in hand. The Observer on these occasions, would try to find common personal ground and to reinforce feelings of confidence where possible. One major disadvantage of not being allowed the use of tape recording facilities, was that the monitoring strategy had largely to be memorised. The researcher is aware of the dangers of misinterpretation in retrospect. She has tried to be faithful to events as they took place.

1.5. Data Collection with Children.

The data collection sessions with the children were very unlike those with the adults, as the children would become bored and fidget during the individual interview sessions. The administration of each set of materials took less than one an hour for each child. Some of the children found great difficulty concentrating over that period of time, unlike the adults. However, the ambience was altogether different to that surrounding the collection of data from adults, who encouraged personal involvement from the Observer and often spun out their interviews with chat.

The interviews for the children, albeit thay took place in a one-to-one situation, reflected their day to day experiences more than those with adults. The children were not so conscious of a sense of 'last chance' as the adults.

The researcher collected data from two hour-long sessions every afternoon for two terms, in the secondary school. The collection of data at this intensity was a tiring experience and it was not possible to collect data from more than two pupils in any afternoon for this reason.

2. Administration of Materials.

2.1. Oral Reading Texts.

The initial intention had been to ask the subjects about their interests and give them a choice of passages to read. Subsequently, because of drawbacks forseen in possible false expression of interest or bias in the number of particular topics being chosen, it was decided to divide the passages into two random groups of topics for use with two separate groups of subjects at stage 1 and reversed at stage 2 (see Table 4.3). The intention was that each subject who was available throughout the study, would finally have read one passage from each of the topic areas. It was hoped in this way, given the limitations of the available time and resources, to obtain a fair ability picture of a nucleus of subjects over passages in a variety of content areas but written in similar style.

Table 4.3. Division of Topic Areas.

Group A		Group B	
Level 1	A B C	Level 1	D E F
Level 2	D E F	Level 2	A B C
Level 3	A E F	Level 3	B C D
Level 4	A D C	Level 4	B E F

Key: A True Story; B Sport; C Health; D Jobs; E Animals; F Food.

There was no fundamental difference between the administration of the passages on the two separate visits. When an error was made, unless the subject illustrated an awareness of it, it was left unmentioned. This procedure was used so that having made an error, the subject himself had an opportunity either to alter subsequent text to fit it or retrospectively become aware of it and correct it himself. Having pursued this method to the end of a passage, it was decided not to supply information about foregoing unnoticed errors because of the risk of arousing anxiety in the subject. Having taken this decision however, there were occasions where words having been read or pronounced wrongly in the text, arose again in the comprehension questions; a student might be nonplussed, not having recognised that word in the text or might equally be embarassed to realise he had read the word wrongly. Such occsions were dealt with as tactfully as possible when they arose.

When an error was noticed by a student, and he was unable to correct it the correct response was immediately supplied to him, so as not to disrupt his reading and cause him as little discomfort as possible (see Self-correction and Intervention). The Researcher underlined words for which errors were made on a transcript of the text and entered above the nearest representation she could manage in English orthography, of the subjects erroneous response. Self-corrections, occasions when help was given, omissions and insertions were also noted.

2.2. Administration of Oral Comprehension Questions.

The comprehension questions were administered to all subjects for whom oral reading errors were recorded. The relevant questions were asked immediately after each passage at levels 2, 3 and 4. In a small minority of cases, questioning was not completed because of lack of comprehension leading to a subject's obvious discomfort.

The passages were presented to the subjects randomly at each level to avoid the effects of practise which might have biased the response to passages administered in a consistent order. It was felt that practise and a possible lessening of nervousness might have affected the error rates and comprehension responses, particularly on 'final' passages.

There were no questions asked after the reading of level 1 texts (cartoon captions with illustrations), since content at this level was considered to be insufficient and inappropriate to the kinds of questions asked at the more difficult levels. It was decided to take a subject's general demeanour together with a fair competence at word recognition as sufficient indication of general comprehension and that these texts (level 1) should perform an introductory function as far as the recording of reading errors was concerned.

Subjects who exhibited obvious difficulties when reading level 1 were taken to be incapable of reading further. In general such subjects were slow or unable to identify individual words. Subjects who were able to cope with level 1 at a word

identification level and who showed some measure of comprehension in their response, either through comment or facial expression (the cartoons were funny) were asked to read level 2.

2.3. British Ability Scales.

2.3 a). Short Term Memory (Recall of Digits).

Similarly in the recall of digits scale, subjects were told that average recall was about 5 digits, or that very few people could recall more than a few digits, depending on their progress. The hope was that any feelings of inadequacy or threat, might thus be allayed.

2.3 b). Word Reading.

Subjects were shown the word list printed on a card and asked to read as many of the words as they could manage.

2.3 c). Word Definitions.

Often the subjects were asked to define the whole list even if certain responses were unacceptable according to the test manual. Responses were taken down verbatim for subsequent analysis and examination. If however, a student was aware that his responses were erroneous, or could not answer at all, he was allowed to discontinue earlier, usually after the required number of errors. He would be reassured by the Observer in this event, that the words became more difficult as the test proceeded and that most people would be unable to do it at all.

2.3 d). Metalanguage.

The questions about metalanguage were again asked in as informal and friendly a way as possible and the verbatim answers noted by the Observer.

SECTION V. CLASSIFICATION AND SCORING OF RAW DATA.

Introduction.

The main variables in this analysis were subjects (readers), the

passages read and the errors made. There were 82 subjects, 59 adults and 25 children and 3009 reading errors. The subjects were identified by age and sex; details of marital status and employment were included for the adult sample, where available. Other details included were information taken from the interview schedules used with tutors, about students' educational background, teacher's opinions of progress, attendance and other relevant details (Appendix III), together with the scores of the subjects on the other measures used in this study. The reading passages were coded for difficulty, length, subject matter, group and stage.

PART 1. Error Analysis.

1. Classification of Errors.

Six of Goodman's original error categories (Goodman and Burke, 1973) were selected for the analysis; corrections, graphic proximity, phonemic proximity, syntactic acceptability, semantic acceptability and grammatical function. Added to these were a 'general error' category, which describes certain characteristics of errors not clearly available through Goodman's method, but useful for comparison of the data with results of other studies; a 'help' category and a 'nonword' category (nine categories in total). Also, certain modifications were made to the Goodman categories which were used mainly in the interests of simplification of his system and ease of access. The categories used, the ways in which they differed from Goodman's original categories and certain problems associated with their use, are described below in some detail. Goodman's system provides a useful way of achieving results comparable with certain other studies where his system has been used, albeit this is a small group.

2. Error Categories.

The Goodman categories selected were those which provided the most direct means of comparison with other studies and also which appeared to be capable of answering questions about processes taking place when illiterate and semi-literate adults approached

the reading task. The codings for the categories are shown in Figures 4.5 - 4.12.

2.A. General Error Type I (Figure 4.5).

The purpose of this category was to provide a simple means of identifying types of error. It provided direct access to error behaviour occurring throughout the records, some of which would be more obscure if accessed through Goodman's complex approach. Although this category is one which was constructed entirely for the purposes of this study and was not taken from Goodman, much of the information obtained through it would be available also from Goodman's more specific categories. The codes for general error types are shown in Figure 4.5.

(i) Basic Classifications.

Substitution.

This kind of error is where a subject read aloud something different from what appeared in the text. The smallest unit for substitution was a single word.

Multiple.

An error would be labelled a 'multiple', if a subject produced more than one word orally, in response to a single item in the text. This might happen for example, when article and singular were substituted for a plural, or where a verb tense involving more than one morpheme was substituted for a verb in the text involving a single word.

Insertion.

The insertion of a word or words in the text. For example:

Error:	He was a good boy
Text:	He was a boy

Omission.

The omission of one or more words followed by a continuation of reading.

Figure 4.5. General Error Types.

Basic Classifications - Column 1

1 Substitution
2 Multiple
3 Insertion
4 Omission
5 Failure to respond (non-response)
6 Punctuation
7 Try

Further Classifications - Column 2

- 1 Single word error
- 2 Compound error
- 3 Repeated error

Failure to Respond (Non-response).

This code was used where a subject hesitated for some reason and was unable either to produce a response to an item of text, or to move on to the next item. It occurred regularly in conjunction with 'observer intervention' or 'help' (see self-correction).

Punctuation.

This kind of error was deemed to have occurred when there was a change of punctuation made by a subject, perhaps indicated by a meaningful pause, the running together of two units of text originally separated by a punctuation mark, a change of intonation (mainly questioning) or the substitution of a word for a punctuation mark.

Try.

'Tries' were coded where a response remained unfinished and was not followed by the correct reproduction of a word in the text. In cases where a 'try' was unfinished by a subject he would either continue with the text, ignoring the error or would be assisted by the Observer. 'Tries' which were followed by complete responses either correct or otherwise, and the coding followed the complete response.

Further Classifications - General Error Type II.

Three further classifications were used, occurring in conjunction with those described above; single word in the text, compound error, and repeated error.

Single Word.

If any of the above errors was made when a subject read a single word in the text, a separate code was added indicating this fact.

Compound Error.

This code was attached to any error which was part of a series related either syntactically or semantically. Goodman described 'compound errors' as those involving more than one word, either in

the text or in the observed response. In this study, a distinction was drawn between 'compound errors' and what are termed 'multiples', where more than one word was substituted for only one word in the text. For example:

Error: has gone
Text: goes

There were some difficulties however, in coding and identifying 'compounds'. For instance, where there were erroneous responses for more than one consecutive word in the text, but help was given in between by the Observer, the errors were coded as a series of single-substitutions. Also, where there was no obvious syntactic or semantic relation between the responses to consecutive words in the text, they were coded as single-substitutions. This particular distinction is by its nature a prey to subjective judgement, since it is sometimes possible for example, to attribute syntactic function to nonsense words in a response, which are otherwise meaningless.

For the most part however, although the 'grey area' described did exist, errors were only labelled compound if their component parts bore some obvious relationship to each other and possibly also to the surrounding text. All other errors were coded singly.

An example of a potential compound error is as follows:

Error: At hotnes
Text: Is honesty the best policy?

In order to record information about the 'compound' error category, it was necessary to code the error in two different ways; firstly for its type and then to indicate whether it was related to another error in any way.

This method of coding did not produce a simple total of 'compound' errors as individual items in their own right but was used to indicate the proportion of errors which were related to or 'compounded' with others. This system allowed also, for the coding of corrections of individual parts of compound errors. Goodman's approach was different here, since he treated each compound group as one error and coded accordingly.

In calculating the percentage error, individual words in compounds were counted together with totals of single-substitution errors as a percentage of the total words read in a given passage.

Repeated Error.

This category was used to identify the repetition of the same error for the same item of text in a given passage. Usually errors like these took the form of repeated single-substitutions.

2.B. Grammatical Functions (Figure 4.6).

The items of text for which errors were made were classified using the five general categories of the Goodman and Burke (1973) taxonomy; noun, verb, noun-modifier, verb-modifier and function-word. All items which could not be classified in this way were termed 'other' including contractions. Numerals and initials were not classifiable at all in this system.

The grammatical system used in the taxonomy was "organised by augmenting a descriptive grammar developed by Fries (1964) with the use of transformational analysis" (Goodman, 1973). Initially all textual items in this study were fully identified in this way. When it came to analysing the data however, it was decided for reasons of time and space to limit that described to the five general grammatical types mentioned.

2.C. Nonwords (Figure 4.7).

A category of error was included which identified recognisable word substitutions from those which were 'nonwords', errors which are not recognisable words in the English language. This category was equivalent to Goodman's code 14 - 'Word and Free Morpheme', sub-category 7. Other researchers have also observed the appearance of this type of error. The codes and examples are shown in Figure 4.7.

Figure 4.6. Grammatical Functions of Textual Items.

1 Noun - This category included nouns and pronouns.

2 Verb - This category included the 'be' form, transitive and intransitive verbs and infinitives.

3 Noun-modifier - This category included as well as adjectives and other types of noun descriptor, possessive pronouns and titles.

4 Verb-modifier - This category was mainly adverbs.

5 Function-word - This category included noun and verb markers e.g. one day; some day (nm) / should have come; is coming (vm)
- verb particles e.g. He turned the light off
- question words e.g. what, when, why, who, how
- clause markers e.g. He knew that the car was new
- phrase markers e.g. he ran along the road
- adverb and adjective qualifiers (intensifiers) e.g. very well; he moved very quickly
- conjunctions e.g. and, nor, therefore, so but
- negatives e.g. no and not
- quantifiers e.g. few people were there

6 Other - This category included contractions and any items which could not easily be classified under other headings

Figure 4.7. Nonwords.

0 Non-applicable. For example, no response, omission, partial (try). This code was also used for names whether recognisable words or not, unless they were obvious alternatives in English orthography e.g. America / Africa

1 A recognisable word (or words, in the case of multiples)

2 Nonword.

2.D. Syntactic and Semantic Acceptability.

2.D.(i). Syntactic Acceptability (Figure 4.8).

Coding Hierarchy.

Errors were coded in a hierarchy of syntactic acceptability from the context of a whole passage of text down to the few words surrounding them.

In this study a middle road was sought, since it was felt that the simple identification of syntactic appropriateness in prior and following contexts left out useful information which could be included without resorting to the complexity of Goodman's total system.

Acceptability within a Sentence.

Those errors which reverted to the original syntax of a sentence before the end of a unit, could by Goodman's method, only be coded acceptable in a following context; not in that preceding. It was observed that sometimes, an error which changed syntax to fit with a previous erroneous response, might well not conform to the syntax of the whole prior sentence, but might be acceptable in the context say, of the clause or phrase preceding it.

It happened sometimes for instance, that a main clause was split by a subordinate clause which contained an unacceptable error. The second part of the clause might revert to agreement with the beginning. Because of the intervening error, in Goodman's taxonomy there was no easily accessible method of indicating this. This was felt to be a fault in the system. Such errors in this analysis were coded acceptable in the following context and at the same time coded acceptable in the context of the clause in which they occurred. An example of this is:

43.A14A.046

e.g. 64213422/25/26

Error: sometime car sylinders
Text: Customers sometimes have old gas cylinders and tins of paint thinner inside cars.

If 'sometimes' were left out, the other errors would be syntactically acceptable.

Figure 4.8. Syntactic Acceptability

Column 1

0 Unacceptable in this column

1 The miscue results in a structure which is acceptable only with the prior portion of the sentence

2 The miscue results in a structure which is acceptable only within the following portion of the sentence

3 The miscue results in a structure which is acceptable only within the sentence

4 The miscue results in a structure which is syntactically acceptable within the total passage

5 Non-applicable

Column 2

0 Unacceptable

1 The error is acceptable within a clause, or more than a clause, but less than a total sentence

2 The error is acceptable within a phrase, or more than a phrase but less than a clause

3 The error is acceptable within the context of the surrounding words, less than a phrase or clause

4 Non-applicable

Some errors in this study, under Goodman's system would have been unacceptable altogether. An example of this is an error being acceptable within a phrase but not a sentence:

Error: I claim
Text: A clinic to teach people not to be afraid of flying has (14.B12C.001/2)
been set up in London.

In this case, the error was acceptable within the noun phrase "A.....flying" but not in the context of the whole sentence. The indication here would seem to be that the subject was not predicting far enough ahead , but was nonetheless, aware of the need to conform to syntax to a degree.

Another example is:

Error: now NR/told daring the
Text: The clients are told how to relax during take-off and
handle
landing.

Here, 'the handle' fits syntactically with 'take-off' but goes no further back than that. Goodman provides no facility for coding this under syntactic acceptability.

Since a number of responses conformed with text syntactically at the phrase and clause level, it was decided to introduce three extra sub-categories under Syntactic Acceptability to deal with them.

1. The error was acceptable within a clause or more than a clause, but less than a total sentence.
2. The error was acceptable within a phrase or more than phrase but less than a clause.
3. The error was acceptable within the context of surrounding words, less than a phrase or clause, the minimum being the preceding or following word, or both.

It was decided to use these additional sub-categories in conjunction with the original codings, since it was possible for

more than one type to be applicable at any given time. The only categories which were completely independent were those which dealt with acceptability in the context of a whole sentence or passage.

Goodman's sub-category, indicating appropriateness in following contexts included all words from the error onwards, but not those preceding, except when the error was an omission. Quite often during this analysis it happened that an error fitted syntactically with a word immediately preceding it and also fitted the following portion of the text but did not take account of syntax much before that. Errors such as these were coded for acceptability in the context of words immediately surrounding them, as well as those following to the end of the sentence. For example:

Error: omitted the
Text: The customer turned round and smashed a bottle on Willie's head.

In this instance, the error 'the', fitted with the following part of the sentence and also with 'smashed' the preceding word.

There were also examples of errors which fitted syntactically with the preceding context and the following part of the sentence, but not with both. Erroneous responses like this could not be coded acceptable within the whole sentence , but a choice had to be made.

Example 1

Error: and
Text: All Bert does all day is bash reject china / at a Stirling factory with a hammer.

Example 2

Error: paid
Text: So John of Rotherham, South Yorkshire, who pays by weight,

and building
has built his mill like a battle-ship.

Changes in Syntax Resulting from Erroneous Responses.

When an error was syntactically similar to the text but which followed unacceptable, uncorrected errors in a sentence, Goodman stipulated that all subsequent errors must be coded in that context also. An error could only be appropriate therefore if its syntax had been changed to fit with that of previous responses. However, corrections, either successful or unsuccessful, must also be taken into account when coding subsequent responses. This was another justification for the inclusion of sub-categories allowing for acceptability in units less than a sentence (see above). These categories provided for reversion to original syntax after non-syntactic responses.

Syntactic Coding of General Error Types.

a) Compound Errors.

Where there was a relationship between two or more separately recorded 'word level' errors, they were coded together syntactically as one unit, and not by their component parts. Goodman, in his own anlysis appears to have coded compound errors and the single units of which they were comprised, separately in two distinct ways; but although he has referred to the procedure, he has not fully described it in his text. For reasons of economy in this study, where there was a choice, or more than one possible level, syntactic and semantic appropriateness were assessed on the basis of the 'compound' relationship. All other coding, like graphic and phonemic, was done at the word level.

b) Punctuation.

Punctuation errors were coded in the entire context in which they occurred, even when this crossed sentence boundaries.

c) Non-response Errors.

When a response was supplied by the Observer, any errors which followed were viewed in the light of the supplied response, but the non-response error itself was coded 'non-applicable'.

d) Tries.

Tries (or 'partials'), where a correction or a full response was supplied by the Observer, were treated in a similar way to non-response errors. Where a 'try' was a complete morpheme however, either nonsense or otherwise, it was coded as if it had been a complete response. For example:

Error: 1. sports/2. super
Text: Miss Superboot

Nonword Errors.

When an error was a morpheme, but not an identifiable word in the English language (nonword) it would be coded according to any recognisable syntactic attributes. Where there was no identifiable part of speech, the error would be coded 'non-applicable', rather than 'unacceptable'. In some instances however, as in the example below, there was doubt:

Error:
Text: Shop assistant Willie Evans can be forgiven if he thinks

orwis
otherwise.

In this case, there was some doubt as to whether the response possessed appropriate syntactic attributes or not.

The Effects of Personal Performance on Syntactic Coding.

There occurred certain responses which could conceivably have fitted with a following context but which in the light of a subject's overall performance were felt to be part of a structure of a complexity unlikely to be familiar to that subject. Such responses were marked unacceptable. For example:

Error: seen
Text: And she seems to like dog biscuits

Had the previous structure read, "and she could be seen to like dog biscuits" the error seen could have been acceptable in the following context. In the light of the subject's general performance in reading the passage, it was considered the error would more likely be graphically or phonemically based than the substitution of a viable alternative structure.

Observer Intervention and Syntactic Ability.

Goodman's method of coding errors relied on his assumption that subjects would not have been helped and that there would have been no intervention by the Observer. In this series of recorded observations, 'help' was necessary because of the social setting. This meant that where in Goodman's case, an omission would have been coded for acceptability based on the assumption that a reader had continued beyond it, to the next word, here, subjects were often helped to achieve or told a response which they had failed to articulate (non-response errors). In these instances they would not have progressed to the next word of their own accord. Instances of this kind were coded 'non-applicable' since it was impossible to predict how a subject would have continued had he or she been able to do so without help.

Omissions which were followed by responses were coded according to Goodman's rules. A distinction was also drawn between 'omissions' and 'failures to respond' under General Error Type (see above).

Separating Syntactic from Semantic Acceptability.

Goodman (1973) wrote: "The grammatical structure forming the sentences must be viewed apart from any semantic meaning they carry. The view is an abstract one involving possible grammatical function organisation." There were occasions however, where the syntactic and semantic aspects of an erroneous response were so closely linked as to make decisions about syntactic acceptability

alone, difficult. For example:

Error: proceeding
Text: It is no good for the medical profession to go preaching

about the evils of smoking

The error would be unacceptable semantically but could have been acceptable syntactically. This is a verb with an 'ing' ending. However it is unacceptable for this particular verb to be preceeded by 'to go' or followed by 'about'. In order to make the judgement and decide on the semantic status of 'proceeding' in this slot, its individual nature, and part of its meaning (semantic nature) was taken into acount. On balance it was decided in this instance to code the error syntactically acceptable - but the problem remained.

Further examples of Syntactic Acceptability.

48 2121 021 code .21

Error:
Text: In fact the colour was due to sand from the desert which

has
had mixed with the ordinary white snow

2 - because 'has' fits with the remainder of the sentence

1 - because the error fits syntactically with the sentence back as far as the the verb (due...desert + which...snow).

14 2123

Error: Doctor said beardly NR(told)
Text: Doctors say that fear of flying can badly affect the

carset person
careers of sports personalities

Doctor/Doctors - error coded 00 (unacceptable in both columns).
said/say - error coded .24 (appropriate to the following part of the sentence only).
beardly/badly - error coded .21 (appropriate to the following part of the sentence and also in the clause 'that...personalities' but not in the total sentence because of the initial uncorrected error 'Doctor').
Note There seems to be less than perfect awareness of the necessity for agreement between nouns and verbs for number, tense etc. For example uncorrected error 03 1214 027:

Error: do
Text: ,All Bert does all day is bash reject china.....

2.D.(ii). Semantic Acceptability (Figure 4.9).

Semantic acceptability was coded in a similar way to syntactic acceptability. For an error to be semantically acceptable however, it first had to fit with syntax. The Researcher was aware that if the formal linguistic definition of semantic acceptability was rigidly adhered to (see Chapter 3), there might well result discrepancies between comprehension scores and rates of semantic acceptability. Overall rate of error too might not be a true reflection of understanding. It was felt that contrary to Goodman's assertion, it would be possible to produce an ungrammatical response which carried sufficient appropriate meaning for comprehension. This being the case, it was felt that total semantic, or for that matter syntactic acceptability might not be vital to the comprehension process. If semantic unacceptability is to imply lack of meaning, certain errors which were coded unacceptable according to Goodman's system did not fit the criterion. For instance:

Error: fallen
Text: The sand also fell in parts of Germany and France.

The erroneous response, although strictly speaking appropriate semantically only in the context of the following part of the

Figure 4.9. Semantic Acceptability

Column 1

0 Unacceptable

1 Semantically acceptable with prior portion of sentence

2 Semantically acceptable with following portion of sentence

3 Error results in a structure semantically acceptable within the sentence

4 Semantically acceptable within the context of the total passage

5 Non-applicable

Column 2

0 Unacceptable

1 Error semantically acceptable within a clause or more than a clause, but less than a total sentence

2 Acceptable within a phrase or more, but less than a clause or total sentence

3 Acceptable in the context of the surrounding words, but less than a phrase or clause

4 Non-applicable

sentence, was felt to have been close enough to the text in this instance, to allow an opportunity for the extraction of meaning from the whole sentence.

Semantic Acceptability and Likelihood.

Sometimes difficulties arose when deciding whether or not an error was semantically acceptable, especially when the context was less than a complete passage. Although a sentence might be 'meaningful' there was the possibility that a bizarre or 'unlikely' picture could result without the error being semantically unacceptable. 'Meaning' in the broadest sense, as related to 'real life' might be breached. In instances like these categorisations were used which took likelihood into account, although linguistically there might be disagreement about the final codings. An example of this is:

Error: that Sang
Text: But what is the face behind the voice like? Said small dark haired Jo. "People seem to expect me to be tall and blonde

I am
and are surprised when they meet me."

It would have been strange indeed to hear Jo 'sing' her remarks.

Acceptability Within a Sentence.

Amongst the errors which were acceptable at the level of a sentence, there were some which while being semantically acceptable in both preceding and following contexts, did not fit with the meaning of both simultaneously. This is a phenomenon which has already been described in the case of syntactic acceptability (see above). These errors did not join the two parts of a sentence to from one complete whole as can be seen in the following examples:

Example 1

Error:
Text: In fact the colour was due to sand from the desert which

has
had mixed with the ordinary white snow.

Example 2

Error: Stop assisting Wylie
Text: Shop assistant Willie Evans can be forgiven if he thinks otherwise

'Wylie', although acceptable as a name, albeit mispronounced, did not join the two parts of the sentence together, leaving them semantically unrelated.

Meaning and Syntax.

As with the identification of appropriate syntax there were occasions when semantic errors were inseperable from structure. Goodman emphasised (above) the dependence of meaning upon structure as a natural facet of language. This close relationship sometimes presented problems for the semantic coding of errors. For Example:

Error:
Text: That was the impression yesterday after a meeting at of the on the Tannadice board at which a discussion took place concerning manager Jim McLean's decision to send McAlpine home from the club's recent trip to Japan, following a dispute over tactics.

(11.2142.029)

The substitution of 'on' for 'at' was a complicated error which followed from the previous part of the sentence and fitted with the following clause, but went no futher than that. It did not join the two segments on either side of it and it did not fit the context of the sentence.

This was interpreted as an instance of a syntactically acceptable response, but syntax could barely be separated from meaning. The semantic anomaly probably rested with the misinterpretation of the word 'board' (the wooden kind). The error illustrated some use of prediction, to the extent that it followed from what went before, but it was then attached to the context immediately following, losing at the same time what went before.

Prediction was not sufficiently far ahead to encompass the complete remainder of the sentence. In fact, by the penultimate clause, the sense and syntax had both been lost.

From this kind of error it was possible to pinpoint a specific place at which transfer took place between the preceding sense and what followed. The preceding sense was apparently not held in mind. It may be that the subject suffered from lack of comprehension; there is no absolute reason however, to suppose he did not understand at least the general sense of what went before.

Names.

It was found convenient to invent an arbitrary rule about the semantic coding of proper names. If the substitution was for the name of a place or country and took the form of another acceptable version of the same country, or the name of a different but recognisable country, so long as the meaning was not affected in any other way, the error was coded acceptable.

If however, the error was a mispronunciation of a name such that it was no longer recognisable as the name of a place, it was marked unacceptable. For example:

Error:	EEan	Argentinia
Text:	Eire	Argentina

Both these errors were coded unacceptable.

Where the error was the name of a person, there was more flexibility allowed, especially if a foreign language name was involved, as happened once or twice. For example:

Error:	Dia Coso	Dayo
Text:	Diego	Diego

Both these errors were coded acceptable.

When making decisions of this sort, allowances were made for departure from the rules of English orthography. Responses which in other respects indicated the subject's awareness of the item being a name were accepted. For example:

Error:	Jack
Text:	Jock

was also accepted. Specific knowledge about this person, since he was a well known figure, might have been available to some subjects, but this was not taken for granted.

2.E. Graphic and Phonemic Proximity (Figures 4.10 and 4.11). Scale of Proximity, Graphic and Phonemic Coding of Responses

All the errors which took the form of 'substitutions' of single words were analysed for graphic and phonemic proximity to the text. Omissions and insertions could not be analysed in this way since they do not allow direct comparison of error with text.

It was assumed that errors were more likely to approximate graphically to the text than to show phonemic correspondence. Both categories were coded by Goodman on a 0 - 9 scale of similarity which was aimed at illustrating degrees of similarity of an error to an item of text. In this study and extra sub-category was added (see Figures 4.10 and 4.11). The scale itself was found to be imprecise and in describing his own results, Goodman (1973) grouped the codings rather than describing the totals for each. He used these groupings to indicate broad degrees of similarity. In some cases for instance, the amount of similarity was not clear cut. For example, an error coded for beginning and middle similarity with the text would come lower doen the scale than an error coded for beginning and end similarity, even when, in the case of graphic proximity, the former had more letters in common with the text than the latter. For example:

Error:	seemed		Error:	besides	
Text:	seems	(05)	Text:	biscuits	(06)

Note: for the most part comments on scoring here apply to both graphic and phonemic proximity. More specific comments are identified within the text however.

By using these codings as a scale, which is not absolute but contained exceptions, the incidence of kinds of similarity could not always be readily indentified. For example, if an error and a response both had two letters, but in other respects were unlike

Figure 4.10. Graphic Proximity

00 There is no graphic similarity between the expected response (text) and the observed response (error)

01 The ER and OR have key letter or letters in common

02 The middle portions of the ER and OR are similar

03 The end portions of the ER and OR are similar

04 The beginning portions of the ER and OR are similar

05 The beginning and middle prtions of the ER and OR are similar

06 The beginning and end portions of the ER and OR are similar

07 The beginning, middle and end portions of the ER and OR are similar, or the middle and end portions are similar

08 There is a single grapheme difference between the ER and OR, or a reversal involving two letters

09 The ER and OR are homographs

10 Where the whole of the ER is read, with the addition of something extra, either at the beginning or the end, (Most of Goodman's examples show ORs which are shorter than ERs) the addition being more than one letter (usually a syllable)

11 This category is inappropriate:
- an omission or insertion of a word
- a compound error, where the words cannot be separated for comparison with the text
- a punctuation error

Figure 4.11. Phonemic Proximity

00 There is no phonemic similarity between the expected response (ER) and the observed response (OR)

01 The ER and OR have key sound or sounds in common

02 The middle portions of the ER and OR are similar

03 The ER and OR have the end portion in common

04 The ER and OR have the beginning portion in common

05 The ER and OR have common beginning and middle portions

06 The ER and OR have common beginning and end portions
or they have common middle and end portions

07 The beginning, middle and end portions of the ER and OR are similar

08 The ER and OR differ by a single vowel or consonant or vowel cluster,
or there is a morphophonemic difference
or there is an intonational shift (including the schwa)

09 The ER and OR are homophones

10 Where the whole correxct ER is read, with the addition of something extra (more than 1 phoneme)

11 This category is inappropriate:
- an omission or insertion of a word
- a compound error, where the words cannot be separated for comparison with the text
- a multiple error, where there is more than one word in the response for one word in the text
- a punctuation error

each other, one extra point was added to the scale. One code denoted similar beginnings but another denoted either similar beginning and end, or middle and end.

Given these imperfections, it was felt that the codings could only reliably be used to indicate trends, types of similarity or approaches to word attack. When they were used in this study, the imprecision was kept in mind and it was decided not to emphasise their use as a scale but simply to employ them as a means of identifying similarities between errors and text. This meant not following Goodman's procedure of adding 'points' for similarity. Attention was given instead to to whatever part of a textual item was reproduced in an erroneous response in an appropriate place. This included single letters where necessary.

The system therefore is as best a rough guide to word attack - subjects often use information (e.g. single graphemes/phonemes) from the text which, because a correspondence is not clear, as indicated by these codings, does not show up. Problems for a number of the subjects seem to be lack of attention to all the details in a word and accurate transfer/translation of observed detail into coherent reproduction.

Additions to Complete Responses.

The aim of this kind of comparison of error with text was primarily to determine what a reader was focussing his attention upon in identifying words in a text. Certain exceptions did occur to the above described rule of comparison, where for instance an erroneous response included the whole of a textual item with the addition of a syllable or more in the response. Goodman provided no separate sub-category for coding such responses, except to compare the shorter word, error or text with the longer. For example:

Error:	championship
Text:	champions

was coded by Goodman as if the beginning and middle portions were similar. A separate sub-category for such cases was included in this analysis (see category 10, Figure 4.10).

Most of the examples provided by Goodman showed errors which were shorter than textual items, so there was no basis upon which to check this sub-category against his method. The assumption in this study when measuring proximity, was that an error would be measured against a textual item rather than the other way about. Thus, for example:

Error:	supportive
Text:	support

would have been coded as a complete response plus an additional syllable rather than for 'beginning and middle' similarity. A one-way comparison of proximity; that is to say, comparing the error to the text; was felt to provide an important means of pinpointing what recognition and reproduction techniques were being used by subjects. Two-way comparisons could give misleading results.

Certain erroneous responses were not clear cut in this respect. For example, it was decided to code -

Error:	taking
Text:	take

'beginning and middle' graphic proximity rather than 'response + extra' because the error did not embody a complete representation of the graphic form in the text. Phonemically however, the r + e code was used. All the errors in this study which were coded 'response +' would have been in Goodman's 'beginning and middle' sub-category. All errors coded in this way were made for morphemes which were capable of additional syllable without a change in the stem. If this had not been the case, many responses of this kind would have been in the category 'nonword'.

Other erroneous responses, which did not fall into the 'response +' sub-category, but were still longer than the textual item, involved the addition of a single letter or were changes of tense or gender which required a change in their stem.

Error:	boating	Error:	going
Text:	boats	Text:	goes

are examples of this.

Anomalies.

There were other difficulties encountered when attempting to use this system, mainly connected with the categorisation of phonemic proximity. For instance, scoring was affected occasionally by the pronunciation of an error:

Error:	glass
Text:	gas

A decision had to be made here whether to assume 'beginning and end' correspondence or to categorise the error as having only one single element difference.

Where there was less phonemic than graphic correspondence between a response and a textual item, sometimes the difference failed to show up in the coding. For example:

Error:	super
Text:	support

Here, the graphic sub-category was 'beginning and middle' cerrespondance. There is however, less phonemic similarity because of the difference in pronunciation of 'u', yet to code the error phonemically similar in the beginning part, ignores the consonant 'p' in the middle. The system here was less than accurate.

In a similar example:

Error:	pupil
Text:	people

categorised 'beginning' and middle' on both the graphic and phonemic scales, the codings do not show a difference which is there.

The unsatisfactory nature of the system lies in the difficulty of imposing a simple identification system upon the variations in sound symbol correspondence in English, where for instance, the vowels in a common beginning to a pair of words are often pronounced differently, yet the consonants remain the same, as with:

Error:	studying
Text:	students

With an erroneous response like this, the differences between graphic and phonemic proximity failed to show up.

The modified Goodman graphic and phonemic proximity sub-categories are listed in Figures 4.10 and 4.11; his general groupings are also indicated.

2.F. Self-correction and Observer Intervention (Figure 4.12).

Self-correction.

Errors which are corrected by a reader without help have an effect on the overall final rate of erroneous response, influence the success of the reading process and also provide information about a reader's awareness of his own behaviour with regard to text.

Probably the most quoted studies of self-correction behaviour are those of Clay (1969), who first emphasised its importance in the development of children's reading skills. Others, including Goodman have also used this kind of information.

The sub-categories for 'self-correction' are listed in Figure 4.12 and in this study always occurred in conjunction with a 'help' category.

Help/Observer Intervention.

In this study, the category 'self-correction' was combined with a 'help' or 'observer intervention' category. This became necessary because observer intervention was used on many occasions during the data collection. Much of the time, the help procedure was used as a prompt by the Observer and a response was subsequently supplied by the reader. So that, syntax and semantic appropriateness in the text immediately following such an error were seldom affected.

Occasions on which a correct response was supplied were those where a subject appeared quite unable to continue. These occasions were counted as 'non-response' and are described in the General Error category above.

Some errors ("correction with pointer") were corrected after having been pointed out by the Observer. This happened where an error was followed by a lengthy hesitation or sign of discomfort. Others were corrected with help from the Observer, or the correct response was supplied by the observer. This happened where there

Figure 4.12. Self-correction and Intervention.

Self-correction.

1. No correction
2. Self-correction
3. Second response incorrect
4. Final correction (after unsuccessful attempt)
5. Unsuccessful correction

Observer Intervention.

1. No intervention
2. No correction, response supplied
3. Correction with pointer
4. Pointer after unsuccessful correction
5. Response supplied after unsuccessful correction

were signs of discomfort or a questioning intonation or substantial pause on the part of a subject, and no sign of a continuation of reading.

All the categories were related to whether or not an error was corrected, either before the subject continued with his reading, or during the continuation.

In certain cases in this study, subjects were unable to correct or to continue. The 'help' category departs from Goodman's assumption that a subject would always be capable of continuing to read. In this adult study, intervention or help from the Observer was felt to be necessary on occasions where subjects for any reason were unable to cope with their errors or to deal with unknown vocabulary.

PART 2. Other Measures.

1. Comprehension Questions.

The comprehension questions were checked and marked first for those obviously right or wrong. All correct answers were marked 1 and all incorrect answers were marked 0. If any part of a response was incorrect and affected the meaning of the remainder, the whole answer was marked 0.

A22D e.g. Q. Where does Bert work?

A. A startling factory. ('Stirling - misread)

If such an error was subsequently corrected by the subject without help, the response was then marked correct.

In contrast to the above example, simple mispronunciation, where the meaning was otherwisw not affected, was marked correct.

e.g. 'Nappier College' for 'Napier College'.

Two other groups of responses were detected neither of which fitted into the above 'totally correct' (1) or 'totally incorrect' (0) categories. A substantial group were simply incomplete (2) and yet another group while not being directly relevant to the passage, were nevertheless true. It was decided that while this latter group of responses might in conventional marking systems, automatically be unacceptable because of being insufficiently context bound, since the object of this measure was to ascertain

comprehension rather than the ability to respond according to a conventional pattern, they should be accorded a separate category of their own (3) the totals of which could be included either with the correct or incorrect totals whenever appropriate.

e.g. A2F Wake up the Mushrooms (passage)

Q. Why are they (the mushrooms) waiting?

A. (acceptable code 1) To wake up any meal.

A. (3) 'For somebody opening the can.' (the opening of the can is not mentioned in the passage)

e.g. B4F Microwave Cooking

Q. How is the microwave energy used?

A. To heat the food. (1)

A. (3) 1. Moves molecules around quicker.

2. For cooking.

2. British Ability Scales.

The scales were scored according to the instructions given in the BAS Manual (see Appendix VI).

3. Metalanguage.

Each question had two parts, each of which was given one point if correct.

SECTION VI. CODING AND COMPUTING OF ERROR AND OTHER DATA.

It was decided, on the examination of the Goodman Taxonomy (Goodman, 1973) bearing in mind the possible time and labour involved in the manual analysis of this quantity of errors, that the most straightforward method of obtaining information about error trends and groupings would be to code the error data using a selected number of Goodman's categories, and to use a computer package for the analysis. Each error was coded according to 12 different criteria, for each of which there were between 3 and 11 sub-categories. In all, more then 42,000 separate coding decisions were made, more than 36,000 of which were about the reading errors themselves.

The Scientific Information and Retrieval (SIR) package (1980) was chosen as being the best available method of dealing with the complexity of the data in hand, and handling the interaction of data from more than one different source. The SIR package also had the ability to interface with the Statistical Package for the Social Sciences (SPSS) (1975) on the Edinburgh Multi-Access System (EMAS) for the purpose of making simple basic statistical calculations.

A number of prominent error variables together with error rates for each subject, adults and children, were selected. Correspondence Analysis (Greenacre, 1980) was used to split the samples into groups on the basis of their individual error profiles (see Appendix VIII).

Subjects and error types relating most closely to the first three axes of the analysis were selected and their individual error rates were tabulated (see Tables for Chapter 8). The variables and subjects selected were those which most differentiated between groups of subjects within the samples, not those which showed consistent levels of occurrence throughout.

CHAPTER 5. GENERAL DESCRIPTION AND COMPARISON OF THE ORAL READING ERRORS AND OTHER RESPONSES MADE BY THE SAMPLE OF ADULTS AND THE SAMPLE OF CHILDREN.

INTRODUCTION.

This chapter gives a general indication of the extent and effect to which the two samples used intrinsic linguistic information during oral reading. It provides a general description of the oral reading errors collected in terms of category or type, and in the context of the two main groups of subjects, adult literacy students and twelve-year old children. The description takes the form of an overall outline of the frequency of each kind of error attribute amongst the total errors made by each sample. This description is followed by a more detailed examination in Chapter 6 of the inter-relationship of the attributes described, with a view to identifying differences in approach between the two samples more closely. The aim thereby is to provide a basis for the contextualisation of the behaviour of individuals and groups of subjects.

The scores for all measurements at stage 1 and stage 2 of the observations were first examined for differences. When very few were found, it was decided for the purposes of these results to combine the two and examine them together. These and all further results quoted here have been produced on this basis. The tables relating to this Chapter, 5.1 - 5.20, appear in Appendix VII.

SECTION I. ORAL READING ERRORS - OVERALL CHARACTERISTICS.

Section I outlines the overall error frequencies. Tables 5.1 - 5.10 are arranged in groups for each characteristic with a 'header' table showing overall frequencies and sub-tables showing relationships with other characteristics. In this Chapter and in Chapter 6, for ease of reference, the subsections are labelled according to the scheme set out in Table 5.0.

Table 5.0. Headings of sections and subsections in Chapters 5 and 6.

Section	Heading
A	General Error Types
B	Grammatical Functions
C	Nonwords
D	Syntactic and Semantic Acceptability
D.1	Syntactic Acceptability
D.2	Semantic Acceptability
D.3	Simultaneous Syntactic and Semantic Acceptability
E	Graphic and Phonemic Proximity
E.1	Graphic Proximity
E.2	Phonemic Proximity
E.3	Simultaneous Graphic and Phonemic Proximity
F	Self-Correction and Intervention

A. General Error Types (Table 5.1).

The proportions of errors in all general error categories were similar for each sample, adults and children. The bulk of the errors, in all two thirds of the total recorded for both adults and children, were single-word-substitutions.

Other general error categories worthy of mention are 'compound-substitution', the component parts of which formed roughly 15% of the errors for both samples, 'non-response' errors - adults 7%, children 3%, insertions and omissions. Altogether, substitutions made up about 80% of the errors and there were twice as many non-response errors for adults as for children.

Amongst the error types which represented a small percentage of the errors, perhaps the most interesting are insertions and omissions. The adults omitted more single words proportionately than the children, but the children omitted more words which formed parts of compound errors, four times as many as the adults. Children also made three times as many punctuation errors as adults. There were proportionately twice as many insertions to be found amongst the errors of the adults as amongst those of the children.

B. Grammatical Functions (Table 5.2).

Adults and children both made similar proportions of errors for each grammatical function in the text. Noun errors occurred more frequently than their incidence in the text [A:43%; C:46%]; so to a lesser extent did errors for verbs [A:18%; C:14%] and noun-modifiers [A:18%; C:19%]. Function-words however, seem to have been less prone to cause error; with both samples, the error proportion was less than half the occurrence in the text. (See p. below for further information on function words).

C. Nonword Errors (Table 5.3).

Errors classified under this heading were clearly identifiable "morphemic" responses - generally substitutions or insertions. It was found that the majority of errors made by each sample were recognisable words. There was however a sizeable group which

were, although conforming to certain contextual constraints, effectively 'non-words'. That is to say they were not recognisable words in the English Language (see Chapter 4 for examples and full description).

Almost a third of the children's errors, more than twice the proportion made by the adults, were nonwords. Only just over half of the children's errors which could be classified in this way, were recognisable words compared with almost three-quarters of the adults'. Errors not classifiable under this heading included 'non-responses' and omissions.

D. Syntactic and Semantic Acceptability.

D.1. Syntactic Acceptability (Table 5.4).

About three-quarters of all the errors made by the adults and the children were syntactically acceptable in some context, and less than a fifth were completely unacceptable in any context. The extent of the syntactic acceptability ranged from errors which fitted with the overall syntax of a passage to those which simply related to the words immediately surrounding a required response (Chapter 4, Section V).

Errors forming the the largest single group for both samples, about a quarter, were acceptable in the context of a whole passage. Those forming the next largest, were acceptable in the whole of a sentence in which an error occurred. The proportions of syntactic acceptability at the sentence level were roughly equivalent for both samples. Similar proportions of the errors of both samples were syntactically acceptable in either the whole of the preceding or following part of a sentence in which they occurred, about 14% in each case. Amongst these was a small group which was appropriate to more of a sentence than simply that which followed or preceded, but not sufficient to make the error compatible with the sentence as a whole. A higher percentage of following-context errors also fitted with parts of the preceding context, than the other way about. Approximately a fifth of the errors acceptable in preceding contexts followed this pattern and

about two thirds of those acceptable in following contexts. The remaining errors which were not totally unacceptable fitted in syntactically with units of text smaller than a sentence but not the complete preceding or following part (Table 5.4.(iii)).

D.2. Semantic Acceptability (Table 5.5).

The proportion of errors which fitted semantically in some way with the context of a given passage was less than that of the syntactically acceptable errors; a feature of the errors of both samples. It is in fact difficult, Goodman (1973) maintains impossible, for a response to be semantically accurate and yet not be grammatical, while it is more frequently likely to fit in with the grammatical structure and yet be meaningless (this phenomenon is well illustrated in the case of many of the nonword errors, see below). For the adult sample, the 53% semantically acceptable figure was about 22% less than that for syntactic acceptability (75%), whereas the gap between the two kinds of appropriateness was even wider (about 33%) in the case of the children. More than a third of the adult errors and half of those made by the children were completely semantically unacceptable. For the adults the figure was two and a half times that of syntactically unacceptable errors and for the children three times.

As with grammatical context, errors fitted the meaning of a text to varying degrees from a complete passage to the few words surrounding an error. There were fewer errors which were meaningful in the context of a whole passage than a whole sentence in the case of both samples and in contrast to the rates of syntactic acceptability which were higher in whole passage than sentence contexts.

The rates of semantic acceptability both in the contexts of prior and following sections of a sentence were not however, substantially different to those for syntactic acceptability for similar contexts.

The amount of semantic acceptability was similar to syntactic at the sentence level for the adults (about 17%), while it was smaller in passage contexts (26% syntactic, 7% semantic). However

in the children's case there were less semantically than syntactically acceptable errors in both passage (24% syntactic; 4% semantic) and sentence (17% syntactic; 7% semantic) contexts, the implication being that the children experienced greater difficulties with meaning than the adults did at the level of sentence units. When it came to appropriateness in the context of part of a sentence, both samples made a similar proportion of errors which were semantically appropriate to the preceding part of the sentence to that which was syntactically appropriate, 13 - 16%. The children showed a slightly smaller proportion of errors semantically appropriate in the following context (10%) than those which were similarly syntactically appropriate (15%), while the adult proportions were almost identical at 12%. The largest single group of semantically acceptable errors for each sample, 13 - 16%, fitted in with the meaning of the part of a sentence preceding each error; this again was in contrast to the largest proportions of syntactically appropriate errors, which fitted with the context of a whole passage.

Most of the errors of both samples which were either syntactically or semantically appropriate in the contexts of prior or following parts of sentences, fitted in with a sentence up to and no further than the place at which the error occurred (in the case of the following part of a sentence - no further back). Some of the errors made by subjects in both samples included in their surrounding appropriate contexts, text in addition to the section of the sentence immediately preceding or following, yet they still did not fit with the whole sentence. The incidence of all these errors was similar for each sample and roughly equivalent for semantic acceptability in contexts of less than a sentence.

D.3. Simultaneous Syntactic and Semantic Acceptability (Table 5.6).

An examination of syntactic and semantic appropriateness together, revealed that a greater proportion of the adult errors than those of the children were simultaneously syntactically and semantically acceptable.

A fifth of the errors made by the adults were both syntactically and semantically acceptable within the context of a whole sentence or a whole passage while only just over a tenth of the children's errors met these criteria. When it came to acceptability in the context of the part of a sentence either preceding or following an error, there was less difference in proportion between the samples (adults - 28%; children - 22%). The proportions of errors which fitted with neither meaning nor grammatical context were similar for both samples, somewhat less than a fifth of the total. Of the children's errors, 15% more were semantically unacceptable than those of the adults. Errors which were semantically unacceptable while sustaining at least some degree of syntactic acceptability amounted to a fifth of the adults' and a third of the children's total.

E. Errors with Graphic and Phonemic Proximity to Text.

E.1. Graphic Proximity (Table 5.7).

When the erroneous responses were examined for graphic proximity to the text, comparisons were made between the graphic form of the required response and that which had been produced in error. The graphic proximity of the error to the text was then coded according to ten degrees of proximity from 'no-graphic-proximity' to those which were homographic (Chapter 4, Section V). An additional classification, 'textual item + extra', was used for errors which were homographic but included additional graphemes. More than 80% of the total errors made by each sample were classified in this way. The remainder, 'non-applicable' errors, were unsuitable for this kind of classification, having no direct graphic connection with the text at all; for example, non-response, insertion and omission errors.

The proportions of errors with varying degrees of graphic proximity to the text were very similar for both samples, about 96%. Very few of the errors bore no resemblance at all to a required response, relatively few had only one letter in common

with it or simply resembled the middle or end portion, without some reference to the beginning. In fact the most frequently occurring kinds of graphic proximity were those where the beginning part of an error, either by itself or in combination with other parts, corresponded with that of the textual representation. Together, responses with beginning portions in common with the text (excluding those with only one grapheme difference) accounted for about half the total errors of both adults and children.

Errors showing only a single grapheme difference from the text accounted for about a quarter of those made by both adults and children. When the percentages of errors with beginnings in common were combined with these, supposing the 'single-grapheme' errors also to have many beginnings in common, together they accounted for more than 80% of the errors of both samples.

The proportions of errors which had end portions in common with the text were somewhat lower than those which had beginnings. Approximately a quarter of the errors of both adults and children were of this kind, excluding those which differed from the text by a single grapheme. The proportions of errors where the middle of the text and the response corresponded graphically, were similar to those for end-portion correspondence.

Most of the time, both groups of subjects appear to have been paying attention to more than one visual element of any given word in the text: the errors of both samples resembled graphically more than one part of a required response about two thirds of the time. When errors did correspond graphically to the text in only one place, this tended to be the beginning; about one sixth of the errors of both samples approximated to the text in this way.

E.2. Phonemic Proximity (Table 5.8).

The phonemic proximity of erroneous responses to the text was measured in a similar way to graphic proximity; concentrating on the sounds that the two responses had in common, rather than their visual appearance.

As with graphic proximity of the errors to text, there was very little difference in the proportions of varying degrees of phonemic proximity for the two samples and in addition, the degree of phonemic proximity was almost uniformly either the same or less than that of graphic proximity. The only noteworthy exception to this was a percentage of errors with end portions similar, where there was less graphic than phonemic proximity. There was almost twice the proportion of errors with no phonemic proximity at all to the text, than no graphic proximity.

E.3. Simultaneous Graphic and Phonemic Proximity (Table 5.9).

When the errors were examined for simultaneous graphic and phonemic proximity to the text it was found that only a very small proportion showed neither.

Less than 3% showed no proximity at all. About 50% had beginnings in common and 20% only a single element different from the text. So, if an error fitted graphically with the beginning part of a textual item it was likely to fit phonemically with the same part. This is what happened most frequently; although on occasions, when there were differences between parts of items for which there was proximity, the phonemic proximity tended to be the lesser of the two.

F. Self-correction and Observer Intervention (Tables 5.10; 5.10 (i)).

Both these variables are concerned with changes made to the responses during the course of reading. More than 80% of the children's and 60% of the adults errors remained uncorrected either by the readers themselves unaided, or with help from the observer. In other words, those errors remained unchanged as the reading progressed. When it came to changes made to errors during reading, the adult samples corrected twice as many (about a sixth) of their errors as the children and were subject to observer intervention three times as often [A:19%; C:6%]. The adults also made more unsuccessful attempts at correction than the children.

SECTION II. COMPREHENSION QUESTIONS RELATED TO THE READING PASSAGES.

Comparison Between Samples.

Fifty of the 58 adults and 24 of the 25 children who participated in oral reading, answered comprehension questions afterwards. The children produced fewer correct responses than the adults overall (Table 5.11) and for all types of question.

The total possible scores at each reading level were 18 and these were divided into three groups for ease of comparison; group 1 (low), 1 - 6 marks; group 2 (medium), 7 - 12 marks; and group 3 (high), 13 - 18 marks. The scores grouped thus are shown in Table 5.12.a and b. The scores recorded here are those of each subject at his/her highest reading level. In general, a greater proportion of the adult sample produced high scores than the children at all reading levels although a greater proportion of the adult sample who reached passage level 2 only scored low, than the children. It can be seen that of the adults reading level 2, most achieved comprehension scores either in group 1 or 2, only one had a group 3 score here. The adults reading to level 3 tended to achieve fairly high scores, most being in group 3. Most of the adults reading to level 4 also scored in group 3, but several also scored in groups 1 and 2.

The children reading to levels 2 and 3 produced comprehension scores mainly in group 2. Those reading to level 4 produced almost all their scores in groups 1 and 2. More adults achieved low and more high scores, than the children.

Two groups of reponses were noticed, in addition to those which were correct or incorrect. A substantial group were simply incomplete answers and another smaller group, while not being directly relevant to a passage in question, were nevertheless true. The former group was marked half correct and the latter incorrect for purposes of scoring.

The proportion of their occurence for each sample is shown in Table 5.13. The children produced more incorrect answers than the adults at each reading level; the adults' proportion of incorrect

responses was highest at level 2.

The proportions of partially-correct responses made by the two samples were comparable; roughly 20% at each level.

The responses of the children which were not directly related to the text, decreased as reading level went up, while the adults produced a more consistent proportion of responses like this. The biggest differences between the samples in this respect was at level 4, where 4% of the adults' responses were unrelated compared with only 1% of the children's.

SECTION III. MEASURES SELECTED FROM THE BRITISH ABILITY SCALES.

1. Short Term Memory.

a). General Comparison of Short Term Memory Scores Between Samples.

Fifty of the 59 people in the adult sample and all 25 of the children were tested with the BAS Short Term Memory Scale. Figure 5.1. shows that the scores for both samples were generally lower than expected (i.e. lower than the test norms would indicate).

It can be seen from the Table 5.14 and 5.15 that the children's performance was more evenly spaced than the adults.

The scores were split into three groups (see Table 5.14):

1. Group 1 - raw score 5 and below for the children and 6 and below for the adults; people scoring at centile 1 or below.
2. Group 2 - raw score 7 - 10 for the adults and the children; centile 2 - 60 for the adults and 2 - 70 for the children.
3. Group 3 - raw score 10 - 14 for both samples, taking in the upper centiles.

The main differences between the samples scores on this scale were a higher proportion of adults than children scoring below the first centile and a greater proportion of children achieving relatively high scores (Tables 5.15; 5.16). However, the number of children in particular, was so small as to make this a very cautious comparison.

b). Short Term Memory Related to Error Characteristics.

A. General Error Type

Figure 5.2 shows that adult single word substitutions were about 65% in STM groups 1 and 2, rising to about 74% of all errors in group 3. The difference was offset by a higher rate of non-response errors in group 1 (18%), which dropped to only 2% in group 3. Compound substitutions were fairly low (5%) in group 1, rising in group 2 and falling again in group 3. Insertions rose, while omissions fell in group 3. They appear to follow opposite paths. The biggest difference between types of errors apart from single substitutions here, is between non-response and compound substitution errors.

The children exhibited similar trends to the adults as regards single substitution errors, but group 1 had a high level of compound substitutions (23%) compared to 12% of group 3. The incidence of compound substitutions was similar for adults and children in groups 2 and 3. In group 1, where the adult tendency was to make non-response errors, the children used compound substitutions. The children made fewer non-response errors than the adults. The children made few insertions and omissions in groups 2 and 3, in contrast to the adults. Non-response errors were therefore made more often by adults with poor short term memories, those who were more capable in this respect making greater percentages of single substitutions. In contrast, children with poor memories made compound substitution errors. The number of insertions made by the adults rose as short term memory improved.

C. Nonwords.

Both recognisable word and nonword responses, that is to say morphemic responses, increased with short term memory scores for the adults, together with a decrease in 'other' errors (Fig. 5.3). These were errors which could not be directly compared with text, like non-responses, insertions or omissions. In contrast, the children's recognisable word errors decreased with short term memory scores.

D. Syntactic and Semantic Acceptability.

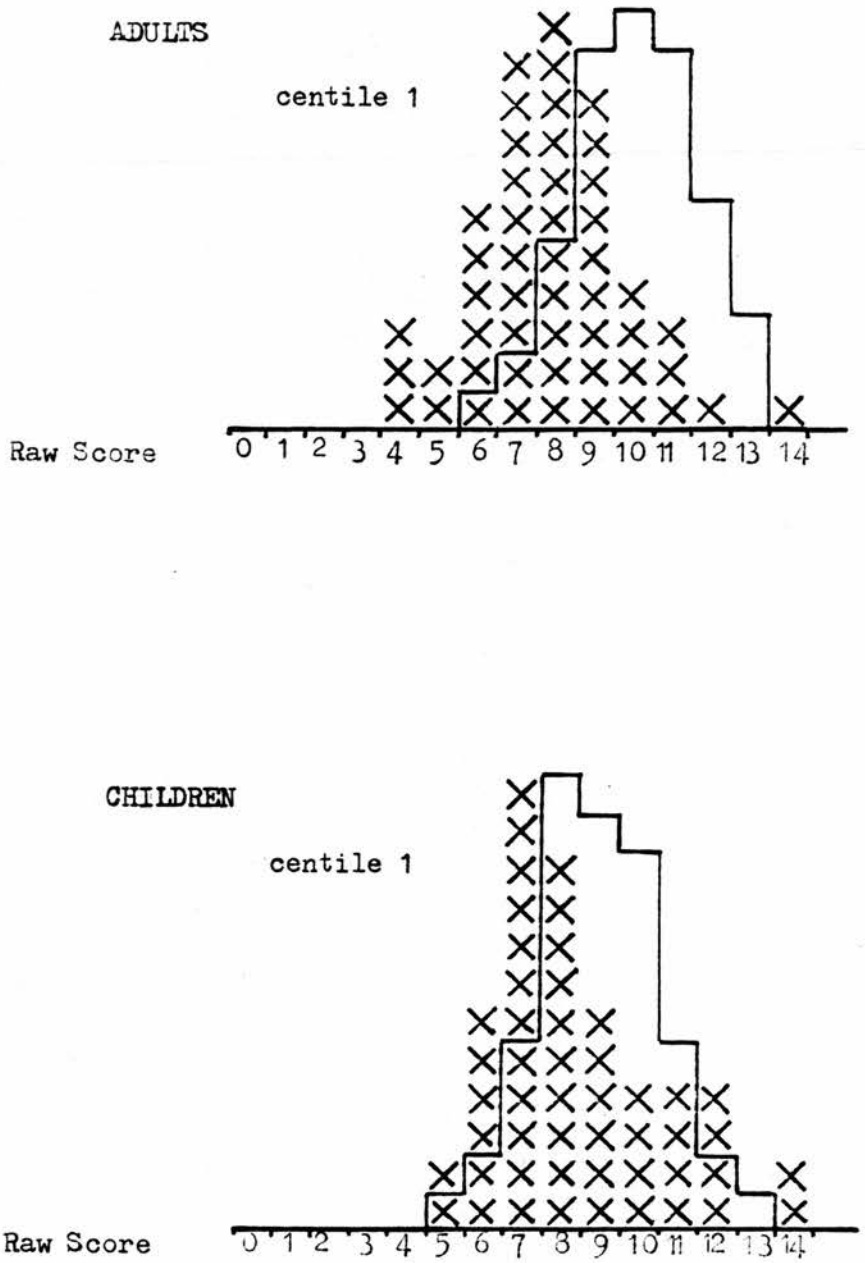
In Figure 5.4 it can be seen that semantic unacceptability was highest for both children and adults. The children had the highest percentages here, rising to 60% in group 3. Semantic unacceptability rose for both samples with short term memory scores, while syntactic unacceptability was lower for both samples. This was higher for the group 3 children, but lower for the group 3 adults. The adults showed higher levels of whole passage syntactic acceptability overall than the children, with a sharp rise to 38% in group 3. There was little difference in the children's levels across groups. Levels of whole passage semantic acceptability in whole passage contexts were relatively low for both samples. Syntactic and semantic acceptability in whole sentence contexts were fairly close for the adults, meeting at group 3 (18%). There was a wider gap between the children's syntactic and semantic acceptability. The connection between syntactic and semantic acceptability and short term memory was not completely clear for either sample. In general however, syntactic and semantic acceptability increased as short term memory improved; for the adults particularly semantic acceptability. The children's ability to produce syntactically and semantically acceptable responses appears to have had even less connection with short term memory, as measured here than the adults'. The incidence of semantically unacceptable errors appears to have risen with improving short term memory.

E. Graphic and Phonemic Proximity.

The errors of the adults in groups 2 and 3 had more phonemic than graphic proximity, and in group 1 more graphic than phonemic. The incidence of beginning graphic proximity rose sharply in group 2, with a slight drop at group 3. Phonemic beginning proximity rose through groups 2 and 3. Where there was no resemblance, the highest percentages were in group 2, falling again in group 3. The incidence of graphic proximity was as expected, consistently higher than phonemic except where there were single element differences (Fig. 5.5).

Fig. 5.1 Short-term-memory scores of adults and children compared with BAS expected norms

KEY: =expected curve
=actual scores
=1 adult
=1 child



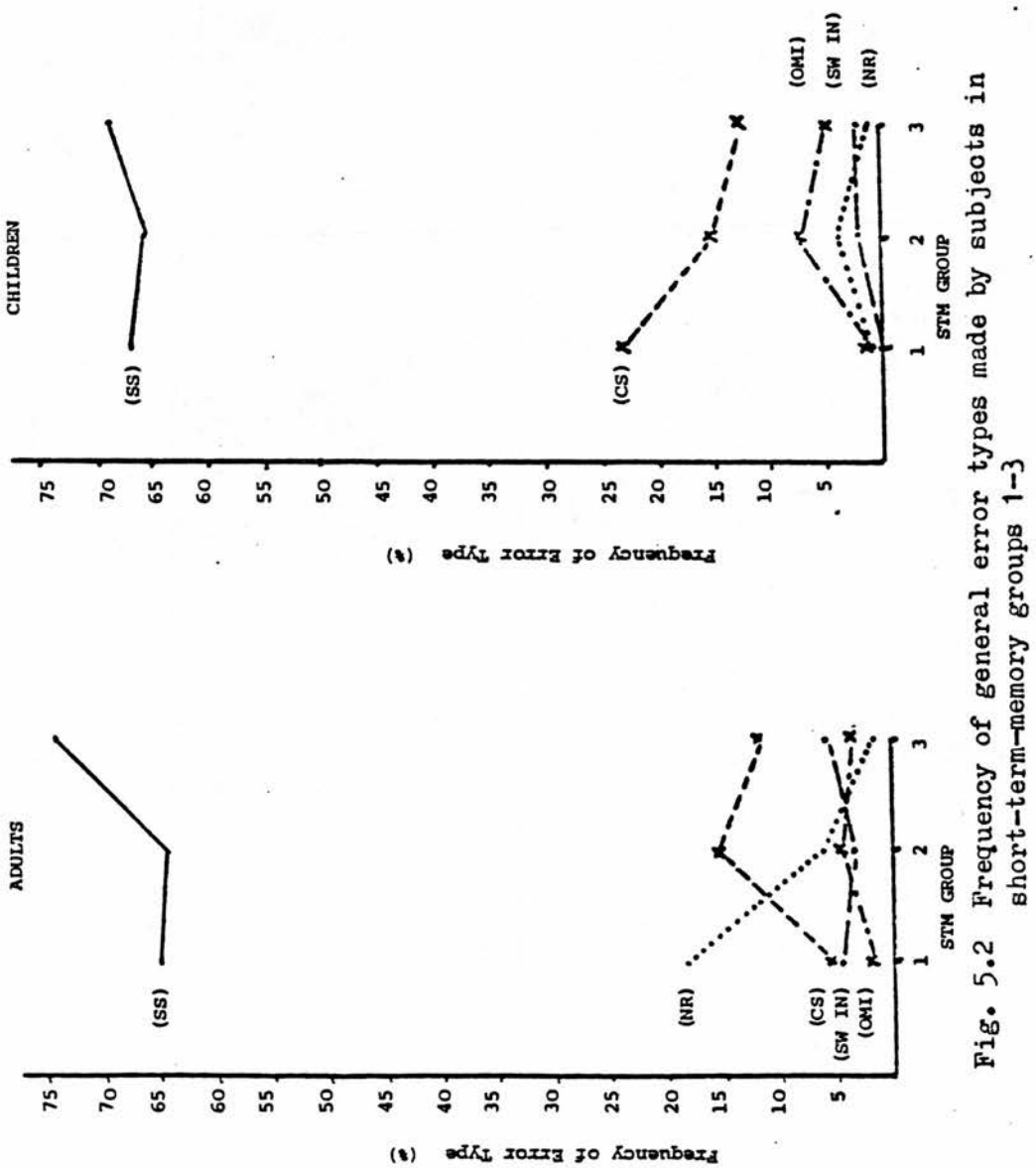


Fig. 5.2 Frequency of general error types made by subjects in short-term-memory groups 1-3

KEY: SS=single substitution; CS=compound substitution
NR=non-response; SW IN=single word insertion
OMI=omission

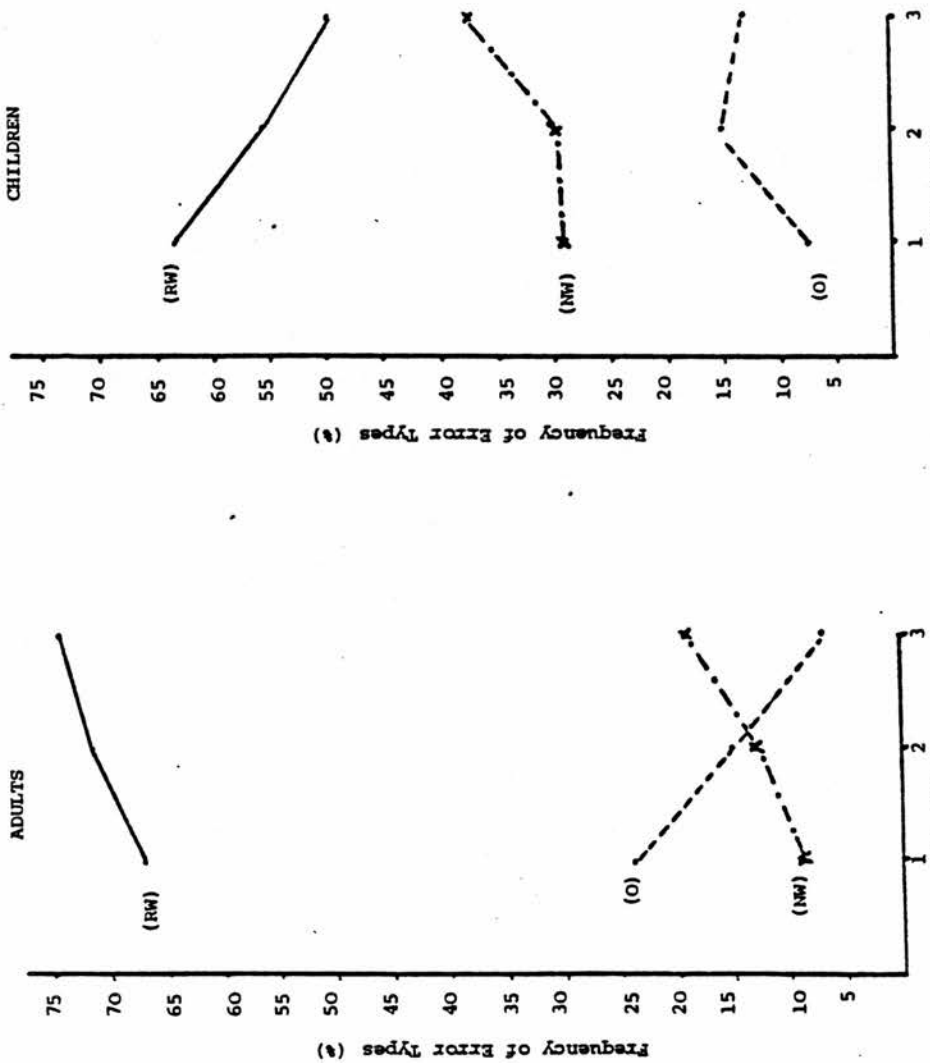


Fig. 5.3 Frequency of nonword, recognisable word and other errors made by subjects in short-term-memory groups 1-3

KEY: NW=nonword; RW=recognisable word; O=other

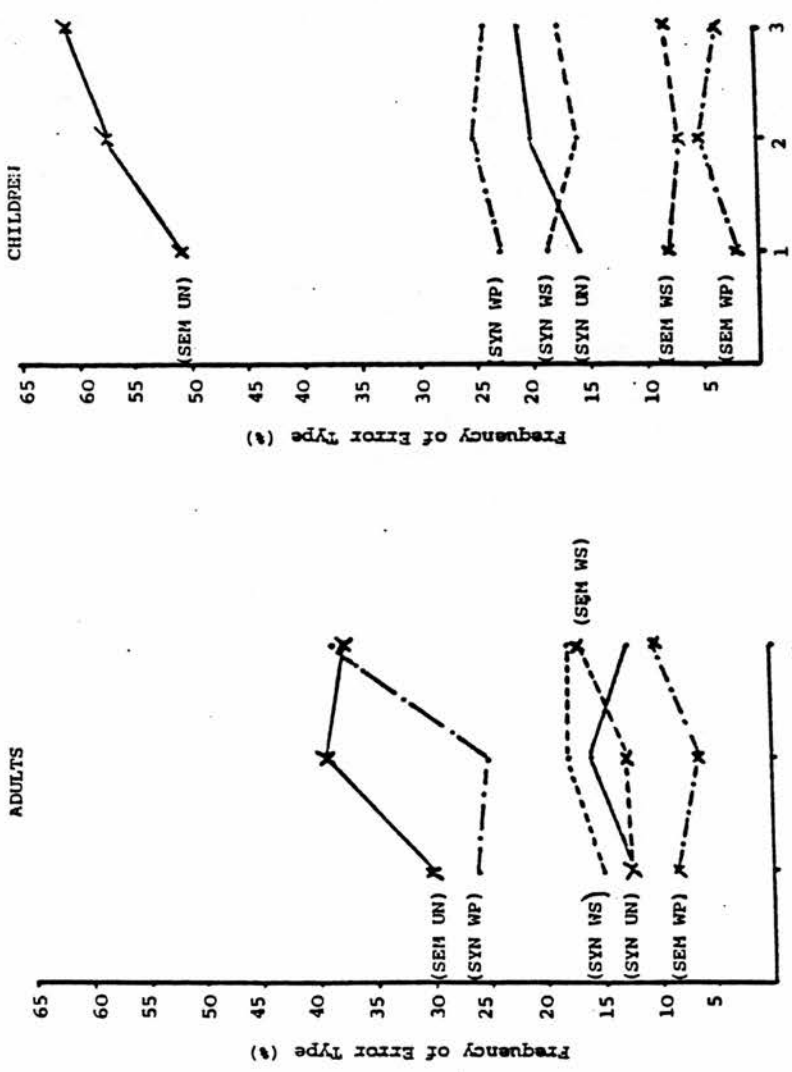


Fig. 5.4 Frequency of errors with different levels of syntactic and semantic acceptability made by subjects in short-term-memory groups 1-3

KEY: SYN=syntactically; SEM=semantically;
UN=unacceptable; WS=whole sentence;
WP=whole passage

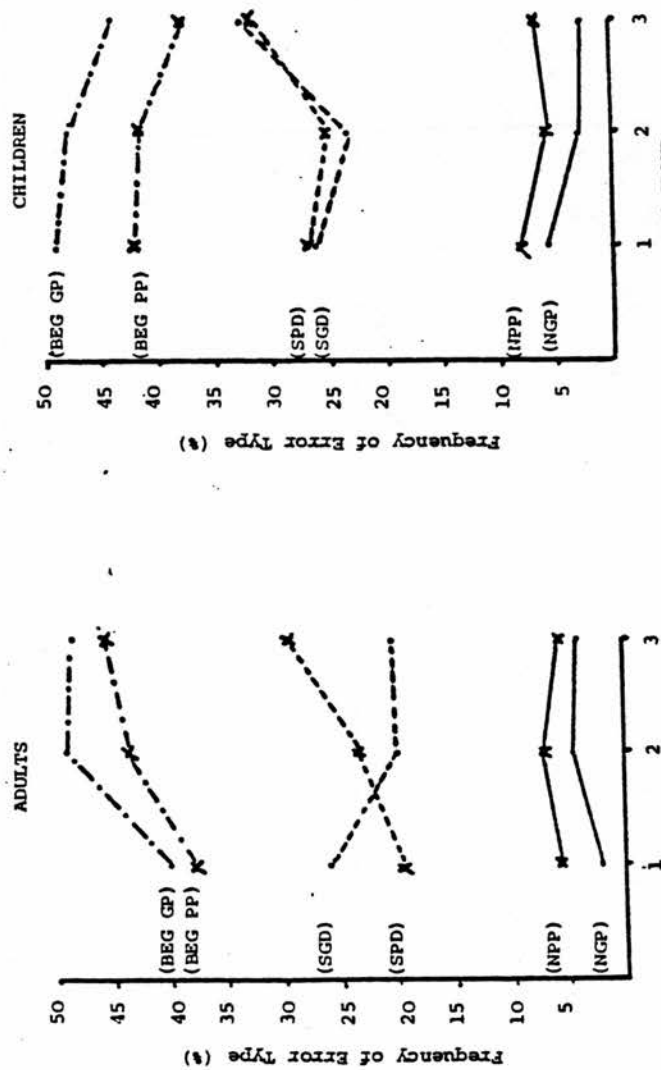


Fig. 5.5 Frequency of errors with different degrees of graphic and phonemic proximity made by subjects in short-term memory groups 1-3

KEY: NGP=no graphic proximity; NPP=no phonemic proximity
BEG GP=beginning graphic proximity; BEG PP=beginning phonemic proximity; SGD=single grapheme difference; SPD=single phonemic difference

Between groups 1 and 3 the errors of the children showed a drop in beginning proximity, in contrast to the adults. Where there was no resemblance, the percentages were highest in group 1. Single element difference errors made by the children dropped in group 2 and rose again in group 3. There was less difference between levels of graphic and phonemic single element difference errors at group 3 for the children than for the adults.

Better short term memory here for the adults appears to have meant greater use of phonemic information while for the children, a much greater incidence of close matching errors both phonemically and graphically with a decline of beginning only proximity.

2. Word Reading.

a). General Comparison of Word Reading Scores Between Samples.

The word reading scale was administered to 51 of the adults and all 25 of the children. Word Reading Scale E, which was directly related to the definitions scale, using the same vocabulary, was too difficult for a small proportion of both samples, 2 children and 5 adults; they could not attempt it. These subjects were asked to try Scale A; all scores here came at or below centile 1.

Figure 5.6 shows the scores of this sample compared to expected average scores on the test. It can be seen that the scores of the two samples here were generally very low.

The scores were then divided into three groups on the basis of the raw scores, group 1 scoring 1 - 3 marks (centile 1 or under), group 2 scoring 5 - 12 marks and group 3 scoring 13 - 20. The percentages of each sample in the groups were similar except for a greater proportion of adults than children achieving low scores (group 1). Eleven (23%) of the adult sample scored at or below centile 1 compared to only 3 (12%) of the children.

b). Word Reading Related to Error Characteristics.

A. General Error Types.

The adults in group 1, with poor scores, made a relatively high level of non-response errors, 24%, which decreased sharply to 7% in group 3, as word reading skills were better. The reduction in the proportion of non-response errors was compensated for by single substitution errors, although compound substitutions, insertions and omissions rose in group 3 with improved word reading, with a slight fall again in single substitutions (Fig. 5.7).

The children's single substitutions increased with word reading skills right up to group 3. Compound substitutions decreased, showing a sharper divergence from single substitutions in group 3 than the adults. The children started off with fewer non-response errors than the adults, but these did increase with word reading group and insertions and omissions in much the same way as the adults, for groups 2 and 3. There were none in group 1.

C. Nonwords

The adults recognisable words increased with word reading skill, so that there was a continuous upward trend in the proportions of recognisable words in relation to word reading scores. The children on the other hand showed a drop in recognisable words as word reading scores increased, and an increase in the proportion of nonwords. The children made a greater proportion of nonword errors at every level, as expected, but in group 3 the steep rise was in direct contrast to a fall in adult nonwords. The adults produced a substantially higher percentage of 'other' errors than the children in group 1, which fell steeply with their rise in recognisable words. Many of these would have been non-response errors (see Fig. 5.8).

D. Syntactic and Semantic Acceptability.

Word reading scores for both samples appear to be connected with syntactic accuracy, although syntactic unacceptability too, was higher for the children with better word reading abilities (Fig 5.9). This was not the case for the adults, where unacceptability dropped with rising word reading scores. The most dramatic curves are those for whole passage appropriateness.

Semantic unacceptability increased as word reading was more competent, for the adults; at group 2, then decreased again at group 3.

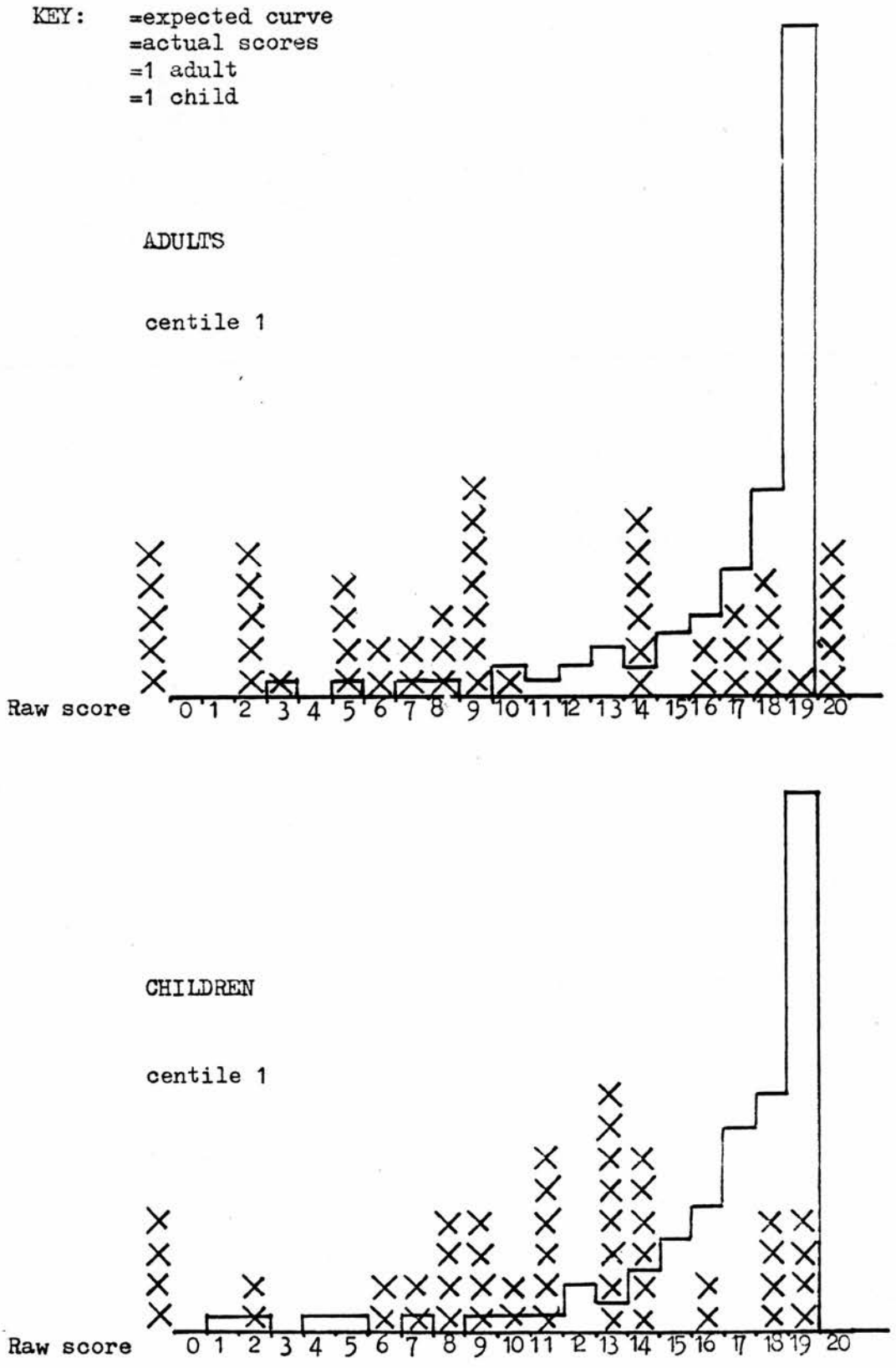
There were discrepancies between syntactic and semantic acceptability here. Syntactic accuracy took precedence over meaning particularly at the whole passage level, although there was less difference between proportions of syntactic and semantic accuracy at the sentence level than at the passage. Semantic unacceptability, although decreasing, was still two and a half times that of syntactic unacceptability, even in group 3.

The children showed a similar tendency, with more accurate syntax coupled with better word reading skills than the adults. The semantic unacceptability of their errors was more pronounced than that of the adults' and continued to rise with better word reading scores, in almost direct proportion to syntactic accuracy at the passage level. It appears to have been at least twice as likely at all levels of word reading skill that errors made by the children would be semantically inappropriate as that they would be syntactically acceptable either in sentence or passage contexts.

E. Graphic and Phonemic Proximity.

Beginning graphic and phonemic proximity gave way to greater proximity with improving word reading skills (Fig 5.10). This happened for both samples. The adults' use of more than beginning only proximity however, did not occur until relatively high levels of word reading competence had been reached, while the children's proximity increased from beginning only consistently with increasing word reading ability. There was a rise with reading skill of grapho-phonemically unlike errors for the adults at group 3 which was not demonstrated by the children.

Fig. 5.6 Word reading scores of adults and children compared with BAS expected norms



Note: Expected scores on this scale are for 14-14+ maximum

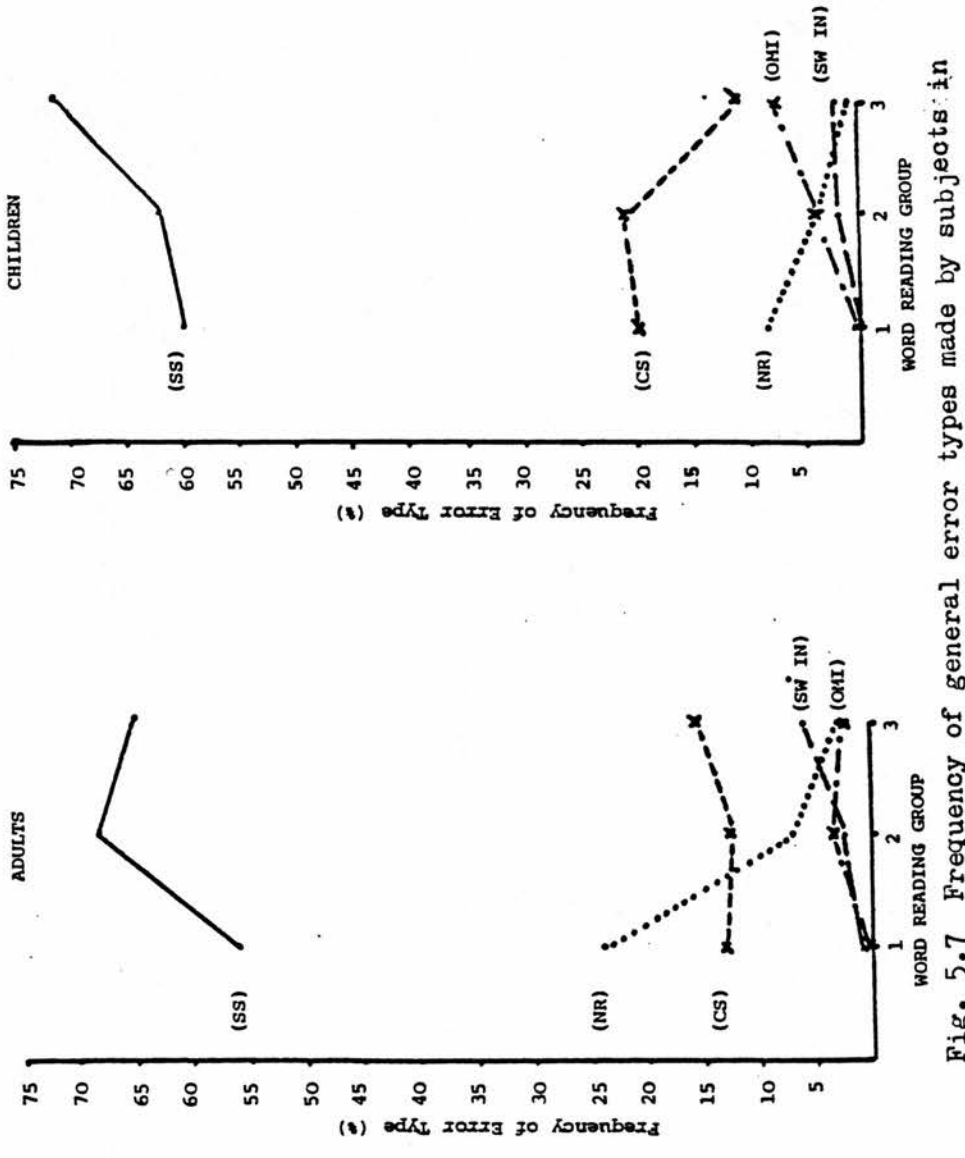


Fig. 5.7 Frequency of general error types made by subjects in word reading groups 1-3

KEY: SS=single substitution; CS=compound substitution
NR=non-response; SW IN=single word insertion
OMI=omission

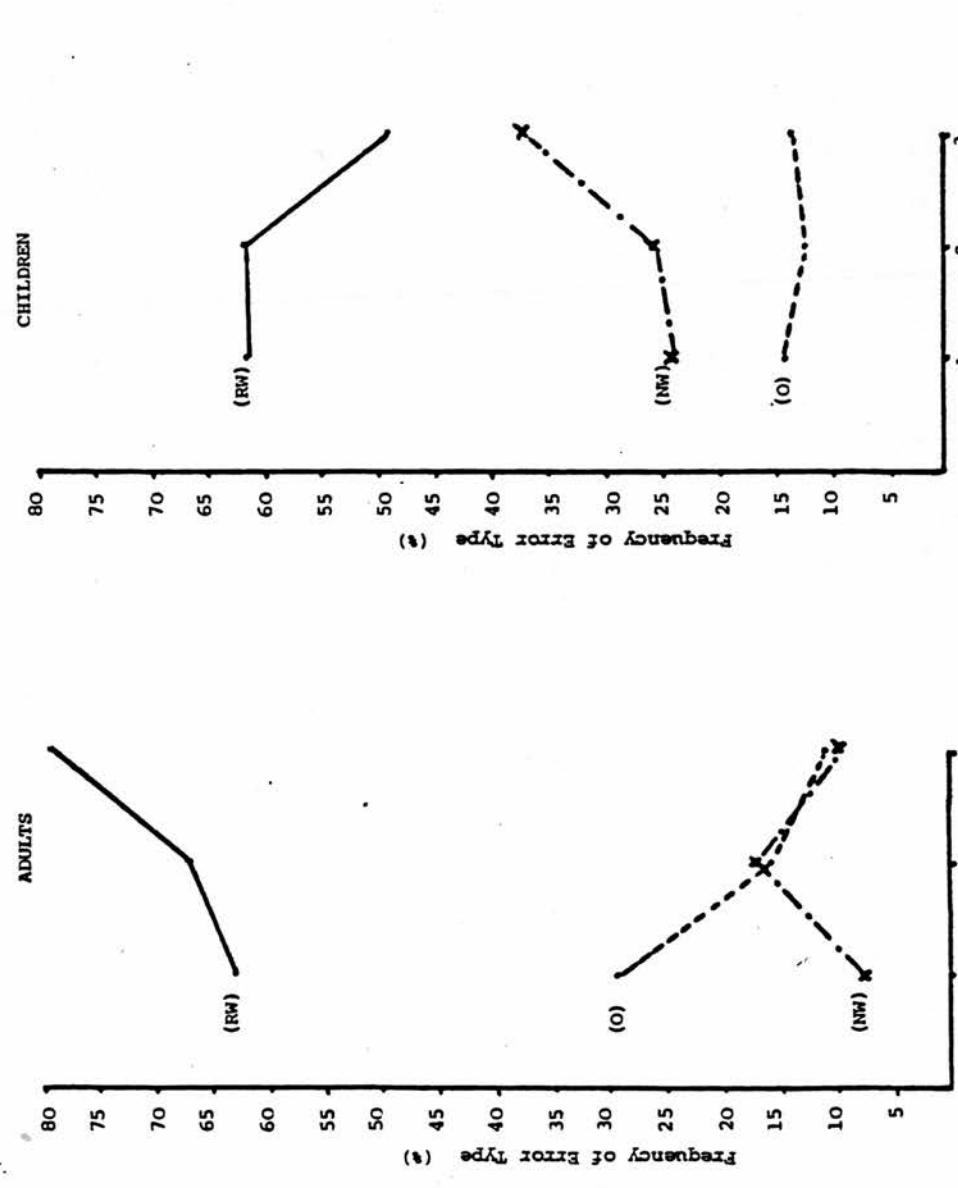


Fig. 5.8 Frequency of nonword, recognisable word and other errors made by subjects in word reading groups 1-3

KEY: NW=nonword; RW=recognisable word; O=other

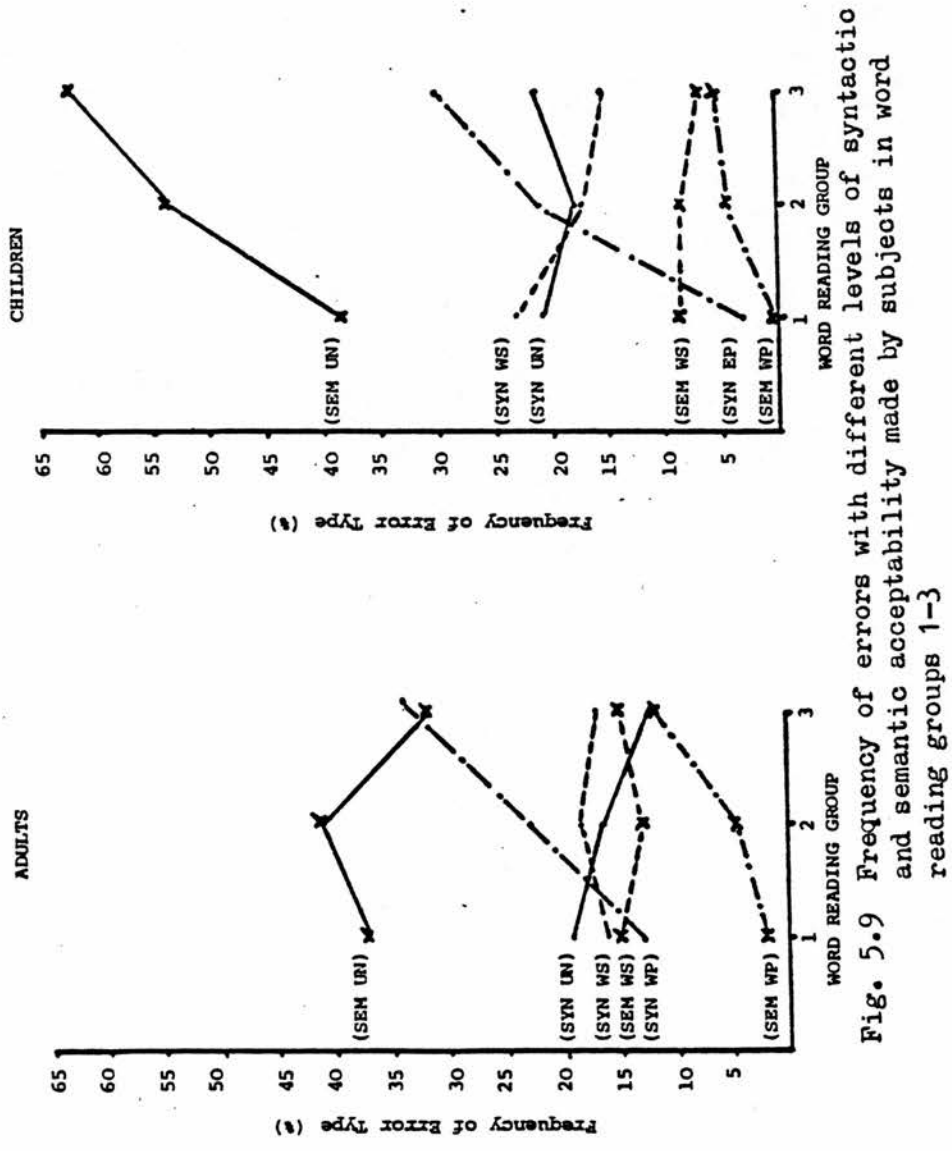


Fig. 5.9 Frequency of errors with different levels of syntactic and semantic acceptability made by subjects in word reading groups 1-3

KEY: SYN=syntactically; SEM=semantically;
UN=unacceptable; WS=whole sentence;
WP=whole passage

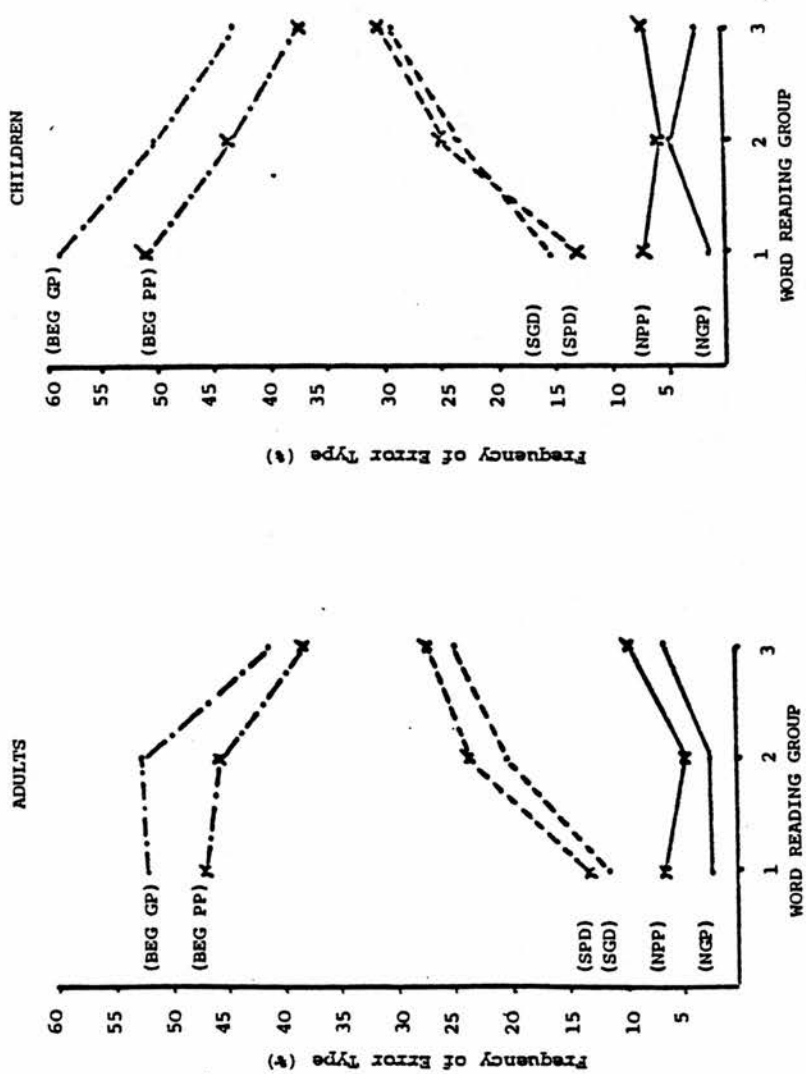


Fig. 5.10 Frequency of errors with different degrees of graphic and phonemic proximity made by subjects in word reading groups 1–3

KEY: NGP=no graphic proximity; NPP=no phonemic proximity
BEG GP=beginning graphic proximity; BEG PP=beginning phonemic proximity; SGD=single grapheme difference; SPD=single phonemic difference

3. Definitions.

a). General Comparison of Definitions Scores Between Samples.

It wass difficult to make direct comparisons between the two samples' results for this scale on the basis of the raw scores, since the expected levels of achievement for the two age groups were widely different.

It can be seen in Figure 5.11 however, that a substantial proportion of the adults and all the children achieved 50% or less of the possible score. An examination of the proportion of the samples scoring at or below centile 1, reveals however that 67% of the adults produced scores of this kind compared with only 28% of the children, centile 1 for the adults being equivalent to a raw score of 9 and for the children a raw score of only 2.

An interesting facet of the adult sample's raw scores however was that about a fifth (23%) scored relatively high marks, above centile 23, yet only one child produced a score comparable to this.

The scores on the definitions scale were again divided into three groups, this being mainly on the basis of the centile score, because of the discrepancy in expectation. Group 1 contained subjects scoring at below centile 1; group 2, subjects scoring between centiles 2 and 23 and group 3 centiles 23 and over. The groupings can be seen in Table 5.19.

b). Definitions Scores Related to Error Characteristics.

A. General Error Types.

The adults here showed less variation between groups 1 and 2 than between groups 2 and 3, single substitutions decreasing and compound substitutions, insertions and omissions increasing. Non-response errors were virtually non-existent in group 3. There were very few subjects in group 3 for the children. Their trend appears to be similar to the adults', except for omissions and insertions. This can be seen in Figure 5.12.

C. Nonwords.

Although these measurements are a very rough guide, there would appear to be (Fig. 5.13) a clear relationship between definitions scores and the propensity to produce a recognisable word, rather than nonwords errors, for both samples. The children's scores here may be contrasted with those in relation to word reading (Fig. 5.8) where nonwords were more frequent with greater competence.

D. Syntactic and Semantic Acceptability.

The most striking aspect about the graphs shown in Figure 5.14 is the fall in semantic unacceptability with definitions ability for both samples. This can be contrasted with semantic unacceptability in relation to word reading and short term memory (Figs. 5.4 and 5.9).

There was again more semantic than syntactic unacceptability in all three adult groups. Both syntactic and semantic unacceptability were lower in group 3 than in group 1 but the proportions of semantically unacceptable errors decreased more dramatically than those of syntactic. Syntax was more accurate than meaning at all levels of definitions competence, particularly in whole passage contexts, the percentage of syntactically acceptable errors at whole passage level in group 3 being 34% and semantic only 13%. At the sentence level however, the proportions were closer: 19% and 22% for group 3.

The children produced more semantically unacceptable errors all round, and very few reached group 3 scores in the definitions scale. The syntactic acceptability of their errors followed a similar pattern to that of the adults, and semantic acceptability in wider contexts was consistently lower than syntactic.

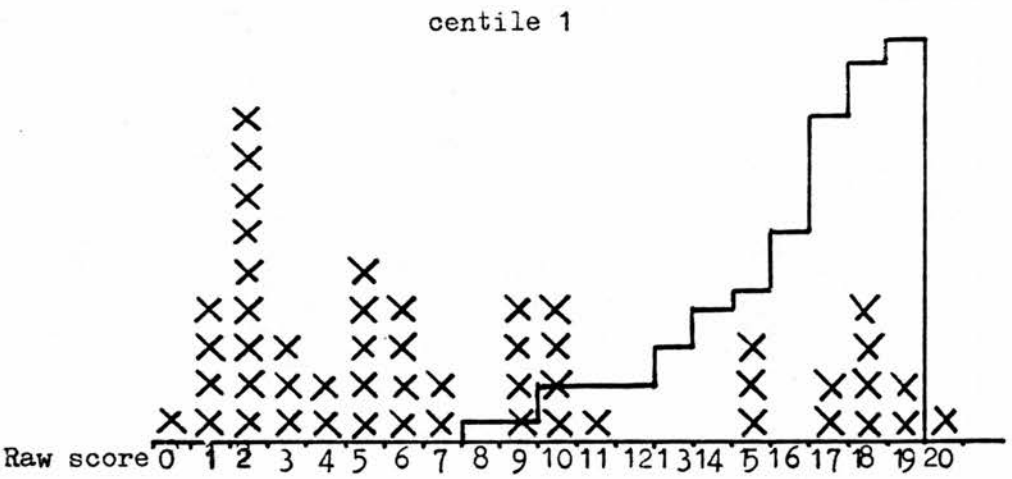
E. Graphic and Phonemic Proximity.

There are sharp contrasts between the adults' and children's levels of graphic and phonemic proximity as related to scores on the definitions scale (Fig. 5.15).

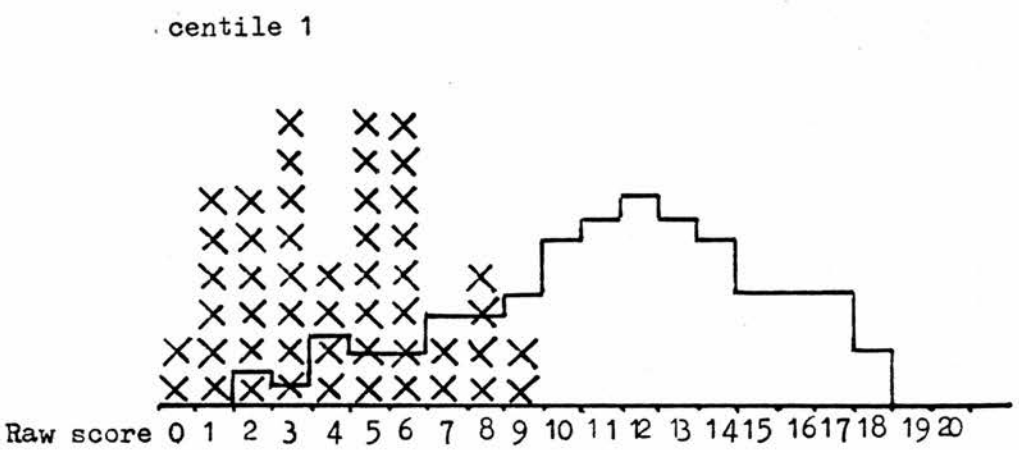
Fig. 5.11 Definitions scores of adults and children compared with BAS expected norms

KEY: =expected curve
=actual scores
=1 adult
=1 child

ADULTS



CHILDREN



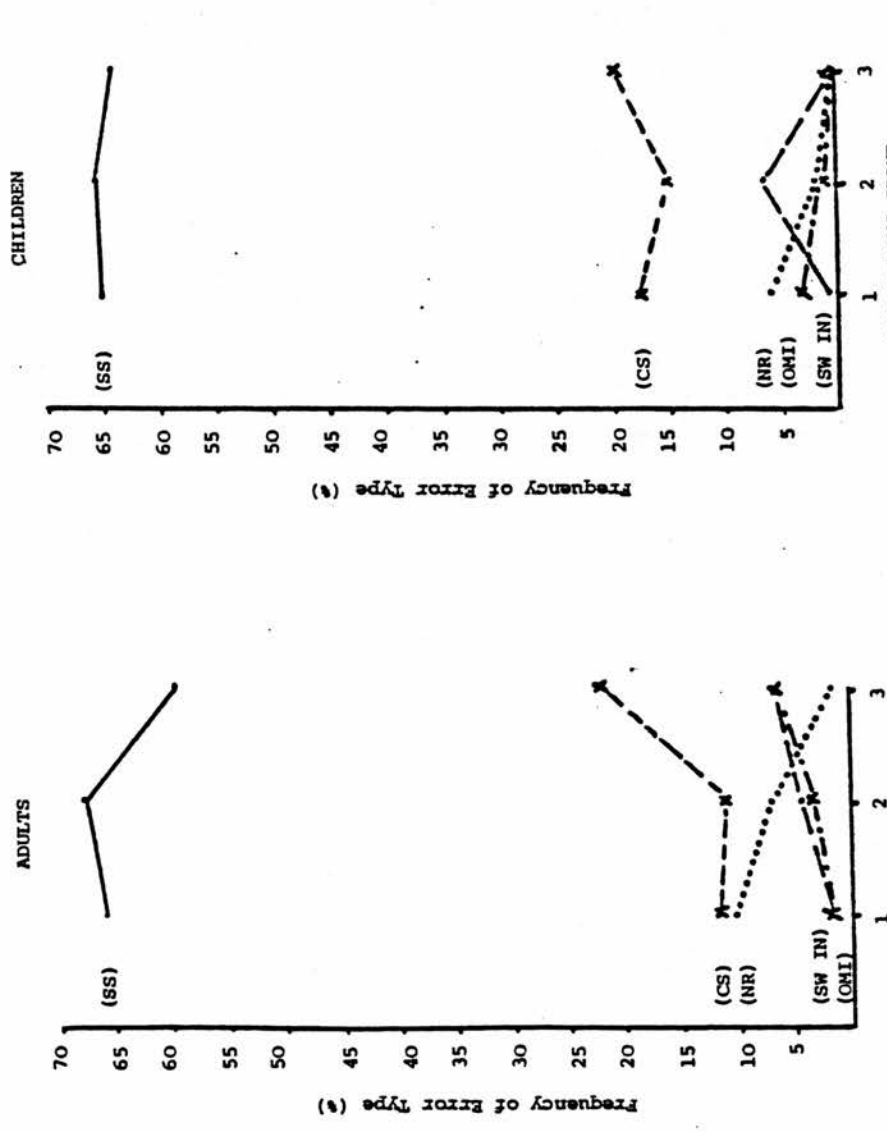


Fig. 5.12 Frequency of general error types made by subjects in definitions groups 1-3

KEY: SS=single substitution; CS=compound substitution
NR=non-response; SW IN=single word insertion
OMI=omission

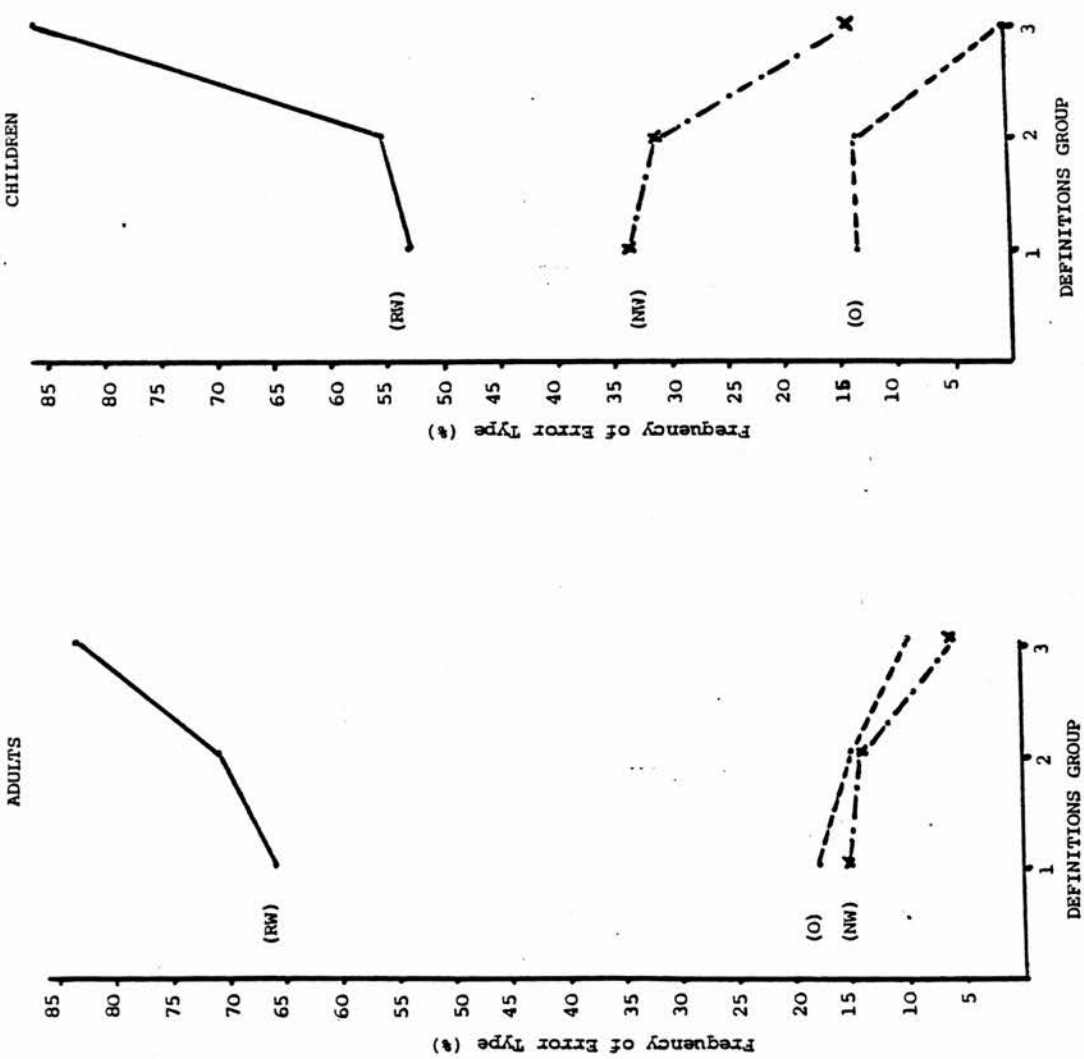


Fig. 5.13 Frequency of nonword, recognisable word and other errors made by subjects in definitions groups 1-3

KEY: NW=nonword; RW=recognisable word; O=other

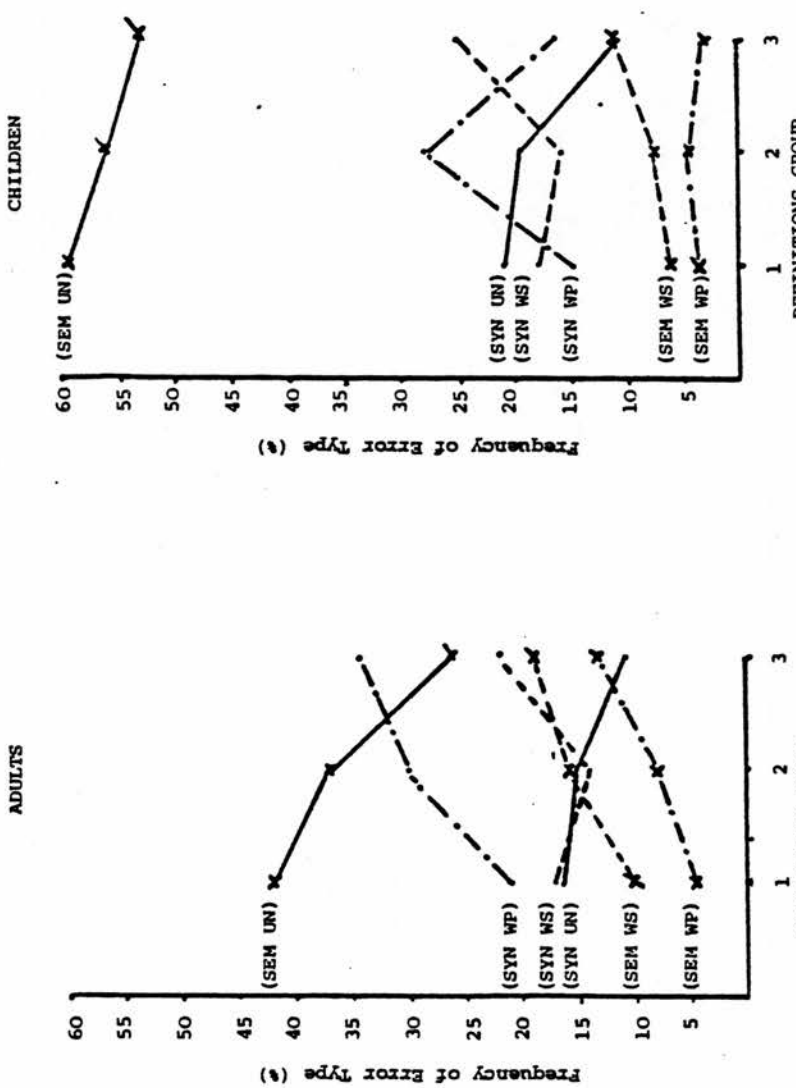


Fig. 5.14 Frequency of errors with different levels of syntactic and semantic acceptability made by subjects in definitions groups 1-3

KEY: SYN=syntactically; SEM=semantically;
UN=unacceptable; WS=whole sentence;
WP=whole passage

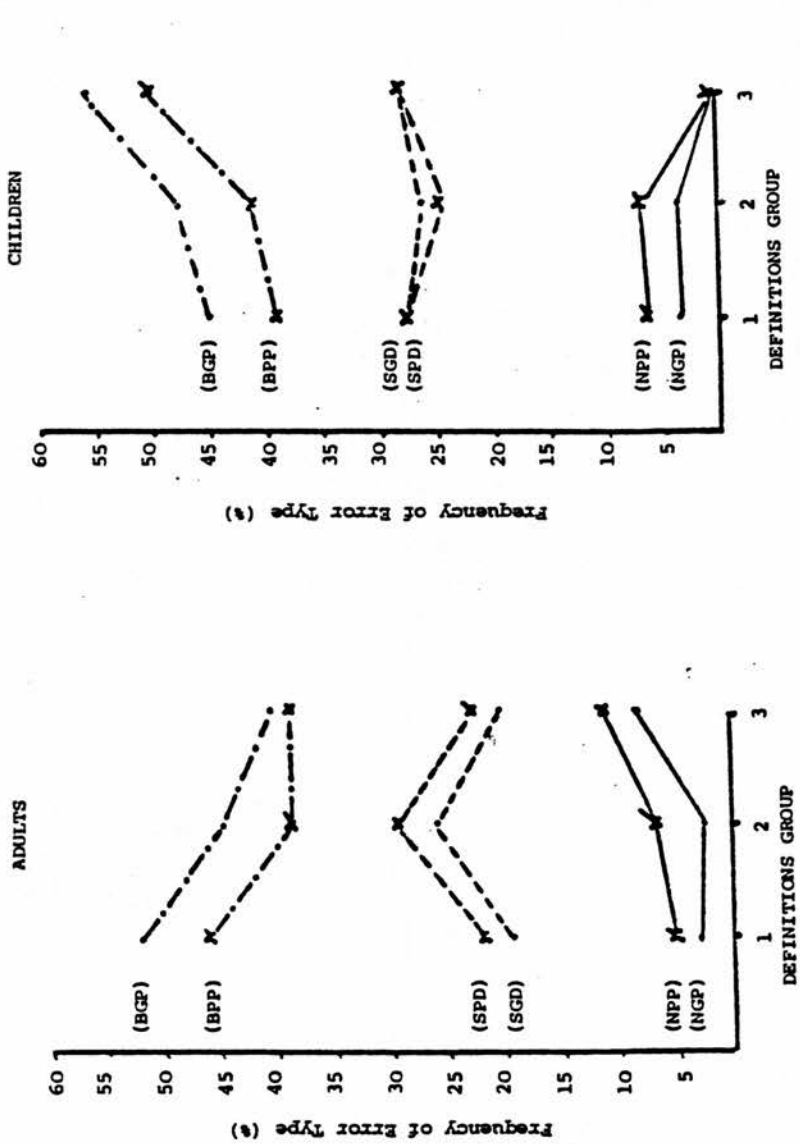


Fig. 5.15 Frequency of errors with different degrees of graphic and phonemic proximity made by subjects in definitions groups 1-3

KEY: NGP=no graphic proximity; NPP=no phonemic proximity
BEG GP=beginning graphic proximity; BEG PP=beginning phonemic proximity; SGD=single grapheme difference; SPD=single phonemic difference

The adults' proportions of no-proximity rose while the children's fell, as definitions skill became greater. The adults' use of beginning proximity fell while the children's rose with definitions group and the adults' single element different errors became more with group 2 and less with group 3. The children showed an opposite trend. It appears therefore that the adults who were more capable of defining words paid less attention to graphophonemic resemblance than those who found the task difficult, while the children's use of visual and aural information increased with competence at the definitions task.

In general, the children appear to have used more graphic and phonemic information the greater their definitions skill, but the adults less.

SECTION IV. KNOWLEDGE ABOUT THE METALANGUAGE OF READING.

The majority of both adults and children were able to identify a sentence, a word and a letter, although quite a large group of both samples were unable to identify a sentence. Most people in both samples were able to identify a full stop and a comma, but quite a number of the adults were unable to explain the use of either, while for the children explaining a comma seems to have been more difficult than a full stop.

Most adults identified and explained the use of upper and lower case letters and capitals, but the children found explaining the use of a capital letter more difficult.

When it came to questions about the apostrophe and inverted commas, the majority of both samples had difficulty, although here almost no children at all could attempt the questions. Roughly one third of the adults identified an apostrophe and named it, and a third were able both to identify and explain the use of inverted commas.

SUMMARY.

Error Characteristics - General Description.

Most of the errors, about 80%, took the form of substitutions; about 60% were single and 15% compound. Errors occurred more frequently for nouns, verbs and noun modifiers than might be expected from their occurrence in the text, but less often for function words.

Just less than 20% of all the errors were completely unacceptable syntactically and semantically. About 25% were both syntactically and semantically acceptable in either preceding or following contexts and between 12% and 20% in whole sentence and passage contexts. Roughly 75% of all errors were syntactically acceptable to some degree, more than 40% at passage and sentence level and 25% in preceding or following contexts (approximately evenly distributed). More than half the following context errors took in part of a preceding context, mainly to the beginning of a phrase or clause, also; conversely a small proportion of the preceding context errors took in following contexts, here to include only one or two words.

Semantic acceptability was less than syntactic at all levels and here there were differences between adults and children too (see below). About 40 - 50% were semantically acceptable in some way, 12 - 20% at sentence or passage level, 25% in preceding or following contexts.

The majority, about 96% of all errors, showed some degree of graphic similarity with the text; about a sixth had beginnings only in common, an additional third had beginnings and other word parts in common and 25% differed from the text by one grapheme. Phonemic proximity was slightly less than graphic, about 93% of errors showing some proximity. Roughly the same proportions of errors had phonemic beginnings in common as had graphic, but there was a smaller percentage (20%) with only a single phonemic element different from the text. Less than 3% showed neither graphic nor phonemic proximity.

Where self-correction occurred there were again differences between adults and children, outlined below. The majority of errors were uncorrected and unchanged during reading. Those errors which were changed were almost equally divided between self-correction and help.

Differences Between Samples.

Most of the error characteristics were similar for both adults and children, with the following exceptions:

The adults produced more 'non-response' errors, more single word omissions and more insertions than the children. There was more self-correction of adult sample errors and also more observer intervention. The children produced more nonword errors, punctuation errors and 'compound omissions'. The semantic acceptability of their errors was relatively low and they produced a greater proportion of errors which were both syntactically and semantically unacceptable, than the adults did. The implication here would seem to be that where certain of the adults sometimes failed to respond at all, indicating perhaps a lack of confidence, the children, although they responded more readily were less meaning oriented than the adults. There are two possible explanations for this. One that the children's techniques did not take account of the need for meaning from text and the other simply that the content of the material was beyond their comprehension.

Comprehension.

The adults were generally more successful at answering comprehension questions than the children, although they produced higher scores when reading level 4 passages and lower when reading level 2, than the children did. About a fifth of both samples' answers were incomplete, and a small proportion, slightly greater in the case of the adults, while not incorrect, were unrelated to the text.

British Ability Scales.

Scores for both samples on all three of the BAS scales used, Short Term Memory, Word Reading and Definitions were generally lower than the test norms indicated.

Short Term Memory.

A greater proportion of adults than children scored poorly here, below centile 1.

Adults with poor short term memories, as indicated by scores on the scale, made relatively high proportions of non-response errors. Their morphemic responses, both nonwords and recognisable words increased as short term memory improved, so did insertion errors. Also for the adults, syntactic and semantic acceptability increased with improved short term memory, particularly syntactic acceptability. Better short term memory scores also related to an increased use of phonemic information for the adults.

Low scoring children tended to make more compound substitution errors than higher scoring ones, and their recognisable word errors , perhaps suprisingly, grew less as short term memory improved. The relation between short term memory and syntactic and semantic acceptability was less clear than with the adults; very apparent was the increased production of errors with close graphophonemic resemblance to the text, of children with good memories.

Word Reading.

Adults with poor word reading skills made high levels of non-response errors which decreased sharply as word reading improved. At the same time there were more single substitution errors and more insertion errors with better word reading. Adults with good word reading skills made more recognisable word errors than nonword errors but particularly, fewer non-morphemic errors.

The children with good word reading skills also made more single substitutions than those who found word reading difficult. The better word-readers also made more omissions, fewer non-responses, and surprisingly, more nonword errors and fewer which were recognisable words.

Both Adults' and children's word-reading success correlated with syntactic accuracy. There were large differences between good and poor readers in this respect. Meaningfulnes was not so closely connected to word-reading skills as grammaticality, but the children who were good at word-reading produced greater proportions of semantically unacceptable errors than those who were poor. This was not the case with the adults, whose unmeaningful errors decreased with better word reading skills.

As word reading was better, there was a tendency for errors to resemble text more closely graphophonemically. Readers with poor skills here produced more errors with beginnings only in common with text.

Definitions.

A substantial proportion of both adults and children performed poorly on the definitions scale, where it is necessary to use language to explain the meaning of words; a complex task. The adults produced a greater spread of scores however, divided into two main groups of very poor and average to good scores. The children's scores were poor to medium.

Apart from the production of nonwords in relation to recognisable word errors, where there was considerable variation with definitions scores, for both samples' errors, the adults' errors appear to have varied more with the ability to define words than the children's. Most of the children produced medium scores, so comparisons within the sample on this basis are not altogether meaningful.

Adults who performed well on the definitions scale produced more compound substitutions, insertions and omissions and fewer single substitution errors than those who performed poorly. High scorers in both samples produced substantially more recognisable word errors than low scorers. There was marked difference in the production of nonword errors between poor and good scorers here, particularly for the children, where those who had difficulty in defining words produced more nonword errors than those who found the task easier. For children in the poor and medium groups here

there were more nonwords and fewer recognisable words than adults in the same groups.

Adults who performed well made substantially more errors which were both syntactically and semantically acceptable in whole sentence and passage contexts than those who had difficulty with definitions. Poor scorers made far more errors which were semantically unacceptable. The children behaved similarly, but meaningfulness in their case was not so closely related to success in defining words as syntactic acceptability was.

With graphophonemic proximity to text, the relationship to definitions skills was not so clear as that of meaning and grammar. The adults who produced medium definitions scores were apt to produce errors which resembled text closely, but those with high scores produced instead more errors which showed no proximity in this way. Conversely, poor scorers among the adults depended more on the visual and aural facets of beginnings of words, than those who were better at defining.

For the sample of children, errors with beginnings only in common with words in the text rose as definitions skills improved. Otherwise the graphophonemic characteristics of their errors were not much affected. For the bulk of the children, who produced medium definitions scores, syntactic accuracy among their errors was the most prominent feature.

Metalanguage.

As might be expected, identification of textual components proved less of a problem for both samples than explaining their use. In this respect, the children found more difficulty than the adults. The majority of both samples successfully answered questions about a sentence, a word and a letter, but when it came to identifying and explaining apostrophe or inverted commas, both were less successful.

Responses made by the children were more commonly right or wrong for the whole sample, than for the adults, whose ability to answer questions like these varied more. From this it was suspected that a proportion of the adults was much better able to

use language about aspects of text than the others, while for the most part the abilities of the children in this respect were similar.

Further Exploration

From the above description it may be seen that the error data was viewed from two main perspectives:

1. Variations which occurred in distribution of errors amongst types and textual appropriateness of various kinds, and
2. differences occurring between the error behaviour of the two samples.

These two perspectives could sometimes be taken separately and distinct from each other and sometimes not.

The main value of the analysis in this Chapter is the very general overall picture it gives of the nature of the reading errors as a whole. It shows that for the most part proportions of error attributes varied little between samples, with one or two sharp and notable exceptions, mainly centred round semantic appropriateness, suggesting that in the main the sample of children took less meaning from the text than the adults did.

Suggestions arose from this initial analysis however, that more than a simple difference of understanding was involved between the two samples. There were differences in the proportions of nonword, non-response and self-correction errors made by the samples, which seemed to indicate a difference in approach to the task of reading and possibly a difference in kind and quantity of linguistic information available and put to use. This supposition is reinforced by the apparent relationship between the ability to define words and to produce meaningful responses contrasted with the relationship of word reading, syntactic acceptability and the use of graphophonemic information.

It was decided therefore to examine the error characteristics more closely to see if thereby, more specific differences in the two samples' approach to the reading task could be pinpointed. This has been done in the next Chapter (Chapter 6).

CHAPTER 6. FURTHER EXAMINATION AND COMPARISON OF THE INTERRELATIONS BETWEEN CHARACTERISTICS OF THE ORAL READING ERRORS MADE BY THE SAMPLE OF ADULTS AND THE SAMPLE OF CHILDREN: UTILISATION OF LINGUISTIC INFORMATION.

INTRODUCTION.

In this chapter, each error characteristic is examined in the light of all the relevant others in turn. In order to obtain useful information, not only is adult behaviour compared to that of children but also proportions of characteristics occurring for individual error categories, (for example grammatical functions or nonwords) are examined in the light of their occurrence amongst the errors as a whole. This procedure was felt to be necessary to build a picture of the variations in these proportions in specific areas, although in some instances, the intricate nature of the interaction between variables, especially syntactic, semantic and graphophonemic, made concise description difficult.

For ease of reference, table numbers are given at the head of the relevant subsections. Where no specific reference has been made to one or other of the samples, it should be assumed that proportions were similar for both adults and children. Only notable departures from overall proportionality amongst the errors have been described here. The relevant tables, 5.1 - 5.10, appear in Appendix VII.

Section I provides a general overview of the error behaviour taking place and Section II is a comparative description of the behaviour of the samples showing where their behaviour differed from the generality and from each other's with respect to each variable. This second Section is introduced by a brief summary statement, about the general behaviour of each of the two samples. Section III attempts to summarise and synthesise the information obtained into concluding comments, however the behaviour described in this chapter is discussed further in Chapter 10.

SECTION I. GENERAL DESCRIPTION OF ERRORS.

A. General Error Types. (Table 5.1 and sub-tables).

1. **Single Substitutions.** Single substitutions occurred more frequently than compound substitutions in whole-passage syntactic contexts.

2. **Compound Substitutions.** Compound errors in general were less syntactically and semantically acceptable than other error types, in every way. They occurred less often in wider semantic than in wider syntactic contexts; their semantic acceptability tended to be limited.

   Compound substitutions contained a relatively high proportion of errors made for function words (22% approximately) when compared to single substitutions (12%) [Table 5.1 (a)]. Quite a high proportion were syntactically and semantically acceptable.

3. **Non-response Errors.** Non-response errors were produced mainly by the adults (see below). More than 60% were errors for nouns and 14% for noun-modifiers [Table 5.1 (a)]. They were also found to form a high proportion of the errors for verb-modifiers (see below).

4. **Insertions.** Almost all single word insertion errors were recognisable words; about a quarter conforming to preceding syntactic contexts, and most of the rest to wider contexts. They had a tendency to be meaningful as well as grammatical, although more so for the adults than the children (see below) [Table 5.1 (a), (e)]. Both single word insertions and omissions were exceptions to the general rule of semantic acceptability being less than syntactic.

   By way of contrast, compound insertions were inclined to be unacceptable both syntactically and semantically. They were strongly connected with verb-modifiers and with function-words. Neither single nor compound insertions were corrected very often [Table 5.2.(f)].

5. **Omissions.** A high proportion of omission errors both single and compound, were function words [Table 5.1 (a)]. Single word omission errors were quite often either unacceptable syntactically and semantically or fitted with following

contexts [Table 5.1 (c), (d)]. Most of the time they remained uncorrected [Table 5.1 (f)].

B. Grammatical Functions. (Table 5.2 and sub-tables)

1. **Nouns.** Errors made for nouns contained a relatively high proportion of non-response and try errors when compared to those made for other grammatical functions with the consequence that substitutions occurred less frequently. These were inclined to be more syntactically acceptable than those made for other functions, although with syntactic and semantic acceptability being relatively low.
2. **Verbs.** Errors made for verbs were less often non-responses than those for nouns and more often substitutions. Also, these were more often recognisable words and less syntactically acceptable than substitutions made for nouns.
3. **Verb-modifiers.** Errors for verb-modifiers were often syntactically and semantically unacceptable. They often formed part of compound substitutions or were nonwords; being corrected without help less often than errors for other grammatical functions and giving rise to more observer intervention.
4. **Function-words.** Errors made for function-words showed high preceding-context syntactic and semantic appropriateness. They often formed part of compound substitutions and were inserted or omitted. About 20% showed no graphophonemic proximity to text. These errors were mainly recognisable words and were often self-corrected.

C. Nonwords. (Table 5.3 and sub-tables)

Nonword errors were mainly single substitution errors, made for nouns or noun-modifiers (20%).

They were in general, either completely syntactically unacceptable or acceptable in whole (40%), rather than part sentence contexts; errors with preceding or following syntactic acceptability tending to be recognisable words.

Graphic and to a lesser extent phonemic information was relied on here, all the nonword errors being graphically similar

to the text in some way and few without phonemic proximity. A high proportion of these errors remained uncorrected.

D. Syntactic and Semantic Acceptability. (Table 5.4 and sub-tables)

General Comments. There were dramatic gaps between syntactic and semantic acceptability of the errors of both samples, but especially the children's (see below). Semantic acceptability was less than syntactic for all error types except single word insertions and omissions.

The greatest proportion of simultaneously syntactically and semantically acceptable errors in all contexts showed both graphic and phonemic beginning proximity to text, especially beginning only, beginning/end and single-element-different proximity.

As the syntactic context of errors became wider, the incidence of those with just beginnings in common with textual items decreased, with an increase in closer graphic and phonemic proximity, except among errors made by adults which were appropriate in whole passage contexts, where errors with beginning only proximity occurred more frequently than among errors acceptable in sentence contexts (see below).

There was a tendency for semantic acceptability to occur in preceding rather than following contexts, and fewer semantically than syntactically acceptable errors were self-corrected or gave rise to observer intervention.

1. **Unacceptable Errors.** Relatively few errors which were both syntactically and semantically unacceptable had graphophonemic beginnings in common with the text. Many showed closer proximity and indeed 20% differed from the text by only one graphic or phonemic element. Worthy of comment also is the relatively high proportion of compound insertions and also errors for verb modifiers among those which were neither grammatical nor meaningful.

   Approximately 20% of the errors of both samples which were syntactically unacceptable were nonwords, more than among errors which in any way fitted grammatically with the text. In

comparison with syntactically unacceptable errors, a high proportion of those which were semantically unacceptable were made for function words, and a low one for nouns. Almost all syntactically unacceptable errors showed some graphic similarity to the text.

2. **Acceptability in Limited Contexts.** Errors which were acceptable in limited contexts more often had no phonemic than no graphic proximity to text. Errors which were both syntactically and semantically acceptable in limited contexts, especially 'surrounding words' quite often gave rise to self-correction.

3. **Acceptability in Preceding and Following Contexts.** Both preceding and following-context errors tended to be recognisable words, a smaller proportion of errors syntactically acceptable in preceding contexts being nonwords than errors with other degrees of acceptability.

   There was a relatively high incidence among preceding-context errors of responses with no graphophonemic proximity to text. There was also, among errors acceptable syntactically in preceding contexts, a higher incidence of errors for function-words but fewer for nouns, than elsewhere. Semantically acceptable errors of this kind included relatively high proportions of insertions. Both syntactically and semantically appropriate errors in preceding contexts were quite often corrected without help.

4. **Acceptability in Whole Sentence and Whole Passage Contexts.** Most errors which were acceptable in whole passage contexts were single substitutions; those which were semantically acceptable in wider contexts, both whole sentence and whole passage, containing fewer compound substitutions than among those which were similarly syntactically appropriate.

   There were fewer errors for function words here, than among errors which were acceptable in preceding contexts, coupled with a relatively high proportion of nonword errors especially among those made by the children.

Errors which were semantically acceptable in whole sentence contexts corresponded graphophonemically closely with the text, than elsewhere, showing correspondingly lower incidences of beginning/middle and beginning/end phonemic proximity to text than among similarly syntactically appropriate errors.

Differences in levels of self-correction between syntactically and semantically acceptable errors were most apparent where there was whole passage appropriateness, there being very little self-correction of errors which were semantically acceptable in these contexts. Errors which were acceptable in both ways, grammatical and meaningful, in passage contexts were less often corrected than any others.

E. Graphophonemic Proximity.

1. **No Proximity.** About 30% of errors with no graphic proximity, differed from the text by only a single phoneme. This is contrary to the finding that errors in general, showed greater graphic than phonemic proximity to text. An explanation could lie in the finding that errors for function words formed the greater proportion of those showing either no graphic or no phonemic proximity; function words quite often being small and of one syllable only, 'a' and 'the' for instance.

A relatively high proportion of the errors which showed no graphic proximity formed part of compound substitutions, especially those made by the children (see below).

Most 'no-proximity' and 'key element' errors were recognisable words (few nonwords here), semantically acceptable in preceding contexts, there being few syntactically or semantically unacceptable errors here. There was however, a higher incidence of syntactic acceptability among errors phonemically unlike the text than among those with no graphic proximity; an error which did not sound like the text might perhaps look like it, thereby including appropriate grammatical features. Errors which were phonemically unlike the text, gave rise to more observer intervention than similar graphic errors. Possibly, if an error sounded wrong there would be more difficulty than if it sounded acceptable yet looked wrong.

2. **Key-element Proximity.** There was a higher proportion of nouns among errors with key-sound than key-letter proximity. About a quarter of the key element errors were self-corrected but most remained unchanged.
3. **Beginning Portion Proximity.** Approximately 20% of the errors showing graphophonemic beginnings only in common with the text were syntactically and semantically unacceptable. The rest were distributed across other levels of acceptability fairly evenly although more were acceptable in wider syntactic than in wider semantic contexts. Most remained uncorrected although for the adults those errors with beginning proximity gave rise to more intervention than the children's (see below).
4. **Combination Proximity.** A relatively high proportion of errors with graphic middle, beginning/end and beginning/middle/end proximity, were nonwords, showing that attempts were being made at word identification using graphophonemic information which were not wholly successful. Errors with beginning/end and beginning/middle/end portions in common with the text tended to be acceptable in wider syntactic contexts than those with just beginning portions in common, although semantically this was not the case in particular with beginning/middle/end errors almost 70% of which were semantically unacceptable.
5. **End Portion Proximity.** Errors with end-portion proximity either alone or in combination with other word parts showed a tendency to be syntactically and semantically acceptable in wider contexts. Few errors whose end portions corresponded to the text phonemically were either syntactically or semantically unacceptable and they were twice as likely as errors with similar graphic proximity, to be acceptable in whole-sentence contexts.

   Syntactic acceptability was high among errors whose beginning and end portions both corresponded to the text. The proportion of beginning/end proximity rose with syntactic context for both samples, so that 40% were acceptable syntactically in whole passage contexts, although there were fewer errors with beginning/end phonemic proximity in appropriate wider semantic contexts.

6. **Single-element-different Proximity.** Approximately 30% of those with no graphic proximity showed only a single phonemic element different. There was little observer intervention here.

F. Self-correction and Observer Intervention. (Table 5 and sub-tables)

1. **Self-correction.** Approximately 20% of the errors which were corrected by readers without help, were made for function words in the text; 20% had been errors which were syntactically appropriate to the text in preceding contexts, a somewhat greater proportion than might have been expected from overall levels of preceding syntactic acceptability.

   Almost a quarter of errors which were self-corrected by the children had beginnings which were graphically similar to the text. More self-corrected errors were unrelated phonemically to the text than showed no graphic relationship, implying perhaps that there was a greater awareness of sound than visual similarity.

2. **Observer Intervention.** Most intervention took place where there were non-response errors or tries and a reader found it impossible to proceed.

   More than half the intervention took place where errors were made for nouns, the next greatest proportion, about 20%, being for noun-modifiers. Only a small proportion of the intervention was concerned with errors for function words.

   More intervention took place where errors were either syntactically unacceptable or syntactically acceptable in whole passage contexts than with other levels of syntactic acceptability. More took place where errors were syntactically rather than semantically unacceptable and less at all levels of semantic acceptability.

   Intervention also happened more where errors showed no phonemic proximity to text, than no graphic proximity. It was higher among errors with beginning proximity than those with beginning/middle proximity or a single grapheme different from text.

There was very little intervention where errors were graphophonemically different from the text by only one element.

SECTION II. DIFFERENCES BETWEEN THE ERROR BEHAVIOUR OF THE ADULTS AND THE CHILDREN.

Introduction.

The general findings about adults' and children's behaviour are described below. Only departures from behaviour already described are included here.

Adults

1. The adults produced fewer compound errors of all kinds, than the children.
2. They made more non-response errors than the children.
3. Their errors were more syntactically and semantically acceptable than the children's.
4. Errors showed less graphophonemic proximity to text than the children's.
5. The adults both corrected their errors without help and received more observer intervention than the children.

Children

1. The children were more inclined to produce compound errors of all kinds than the adults.
2. They produced more non-word errors than the adults.
3. In general their errors were less syntactically and semantically acceptable than those of the adults.
4. They corrected errors without help and received observer intervention less often than the adults.

Detailed Comments

A. General Error Types (Table 5.1 and sub-tables).

Adults

1. About a quarter of the adults' single-substitution errors received observer intervention.

2. More of the adults' compound insertions were syntactically acceptable than those of the children, especially where they were acceptable in preceding contexts.
3. Compound insertions made by the adults, together with compound omissions were corrected more frequently than the children's.

Children

1. The children's compound errors tended to be both unacceptable and uncorrected.
2. Although they received relatively little observer intervention their compound omissions gave rise to assistance.
3. They produced more unacceptable single word omissions than the adults but were inclined to correct them.
4. More of their single word omissions and insertions were acceptable in following contexts than the adults' and insertions of this kind were also acceptable in preceding contexts more than the adults.

B. Grammatical Functions (Table 5.2 and sub-tables)

Adults

1. The adults errors for verbs were less acceptable than those for nouns.
2. The adults' errors for noun-modifiers and verb-modifiers were more syntactically and semantically acceptable than the children's.
3. Their errors for verb modifiers, were a) often non-responses, and b) often resembled key graphophonemic elements of text.
4. No adult errors for verb-modifiers resembled end portions of textual items.

Children

1. The children's errors for nouns, verbs and verb modifiers showed particularly low semantic acceptability.
2. Their errors for verbs tended to be syntactically unacceptable and also resembled text less closely graphophonemically than the adults'.

3. The children's errors for noun-modifiers were less syntactically and semantically acceptable than the adults' and tended to fit in with the text in phrase and clause contexts.
4. Their errors for noun-modifiers and those made for verb-modifiers, a) where they could be compared to the text often showed graphophonemic proximity with more than one graphophonemic element, and b) alongside this, also included a high proportion of non-responses and tries.
5. When the children made errors for function-words they tended to be syntactically unacceptable.

C. Nonwords (Table 5.3 and sub-tables)

Adults

The adults' nonword errors were less syntactically acceptable than the children's. They sometimes made unsuccessful attempts at correcting them.

Children

The children made more nonword errors than the adults, especially among their single-substitution errors.

D. Syntactic and Semantic Acceptability (Table 5.4 and sub-tables)

Adults

Syntactic Acceptability

1. Apart from the non-response errors, many of the adults syntactically unacceptable errors (as well as those acceptable in whole-sentence and passage contexts) gave rise to intervention.

   The frequency of graphic and phonemic beginning proximity to text was higher among the adults' errors at all levels of syntactic and semantic acceptability, than among the children's. It was highest among the adults' errors which were either unacceptable or acceptable in limited contexts.
2. Their errors which were syntactically acceptable in limited contexts were rarely single word insertions or verbs.

3. Errors made by the adults which fitted syntactically with preceding contexts showed beginning/end and beginning/middle phonemic proximity more often than the children's and were also often corrected without help.
4. Relatively large proportions of the adults' errors acceptable in whole-passage contexts showed beginning only graphic proximity to text.

Semantic Acceptability

1. A greater proportion of the adults' errors with semantic acceptability in limited or clause contexts were corrected without help; more too than similar syntactic errors.
2. There was a relatively higher incidence of observer intervention among their errors which were semantically acceptable in clause and preceding-context, than elsewhere.
3. A relatively high proportion of the adults' limited and preceding-context semantic errors had phonemic beginnings only in common with the text.

Simultaneous Semantic and Syntactic Acceptability

1. Where the adults' errors showed simultaneous syntactic and semantic acceptability to any degree, beginning only graphic and phonemic proximity were more frequent than among the children's errors. This degree of proximity was most frequent among the adults' unacceptable and limited-context errors however.
2. Errors which showed complete graphophonemic proximity to text except for a single element, appeared most often among those which were acceptable in limited contexts.
3. Beginning/end proximity was highest among preceding-context errors.

Children

Syntactic Acceptability

1. The children's syntactically unacceptable errors were often compound, either substitutions or omissions and contained a relatively high proportion of function-words.
2. Their syntactically acceptable errors in limited preceding contexts were relatively often self-corrected.

3. Among the children's errors which were syntactically appropriate in preceding contexts there was a high proportion with graphic proximity.
4. Errors which fitted syntactically with preceding and whole-sentence contexts contained the greatest proportion of the children's insertions.
5. A greater proportion of the children's errors than the adults', which were acceptable syntactically in sentence and passage contexts were nonwords.

Semantic Acceptability

1. The children's errors which were semantically acceptable in limited contexts contained a) relatively high proportions of those with graphic beginning proximity; lower beginning/middle proximity, and b) more errors which were unlike the text phonemically than those with no graphic proximity.
2. a) Among their errors semantically acceptable in preceding contexts the children produced more single and fewer compound errors than at similar levels of syntactic acceptability.

   b) A greater proportion of their semantic preceding-context errors and a smaller proportion of their following-context errors than those of the adults showed graphic beginning/end proximity.
3. a) Among the children's errors which were semantically acceptable in whole-sentence contexts, there was more self-correction than among errors which were similarly syntactically acceptable.

   b) In general they corrected fewer semantically acceptable errors than the adults did.
4. Among their errors which were semantically acceptable in whole-passage contexts there were

   a) relatively few errors for noun-modifiers,

   b) more with phonemic end proximity than elsewhere,

c) more with a single graphophonemic element different from the text than among errors with similar levels of syntactic acceptability, and

d) a greater proportion of errors with beginning/end proximity in common with the text than among the adults; very like their syntactic errors.

Simultaneous Syntactic and Semantic Acceptability

The children corrected fewer errors showing neither syntactic nor semantic acceptability than the adults did.

E. Graphophonemic Proximity (Table 5. and sub-tables)

Adults

1. A relatively high proportion of the adults' errors with beginning/end proximity fitted with preceding contexts.
2. The highest proportion of adult errors with a single graphophonemic element different from text occurred in limited contexts.

Children

Graphic Proximity

1. a) Errors made by the children with no graphic proximity to text and those with end proximity contained a relatively high proportion of compound substitutions.

   b) It was rare for errors with no graphic proximity or beginning-element proximity to be acceptable in wider syntactic and semantic contexts.
2. a) Many of the errors with middle graphic proximity were syntactically and semantically unacceptable; few of them were verbs.

   b) Errors with middle-portion proximity occurred more frequently in preceding than following semantic contexts.

   c) They were relatively frequently corrected and there was little intervention.
3. The children's errors with beginning/end graphic proximity were

   a) often nouns and

   b) contained a high proportion of nonwords.

4. Errors with beginning/end, beginning/middle/end and single-element-different graphic proximity were the least self-corrected by the children.

Phonemic Proximity

1. Where the children's errors showed either no phonemic proximity, beginning, middle or end, with the text they were more likely to be nonwords than those with no graphic proximity.
2. Among their errors with middle phonemic proximity, there were
   a) more compound substitutions,
   b) more errors for verbs , and
   c) more errors acceptable in preceding than following contexts than among graphic middle-portion errors.
3. Errors with phonemic beginning/middle/end proximity made by the children were more often for verb-modifiers than those of the adults'.
4. Those with phonemic end portions in common with the text were more often semantically unacceptable than those with similar graphic similarity.

F. Self Correction and Intervention (Table 5.10 and sub-tables)

Adults

1. The adults showed a tendency particularly to correct errors which were semantically acceptable in preceding contexts.
2. More of the adults errors which were acceptable in preceding and following-contexts were changed, either by means of self-correction or intervention, than those of the children.

Children

1. About a quarter of the children's self-corrected morphemic errors resembled beginning portions of morphemes in the text.
2. A relatively high proportion of the children's tries and non-responses were corrected without help.
3. Very few of the children's errors appropriate to following contexts were self-corrected.
4. The children corrected errors with beginning/middle proximity more frequently than the adults; they corrected very few errors with beginning/end proximity however.

Distinctions between error characteristics hinged on the single word and the compound error on the one hand, and on the relationship between syntactic, semantic and graphophonemic information on the other.

It appears that compound errors can by and large be taken as an indication of text processing difficulties greater than those indicated by the 'single' error, along with non-response errors and those without either syntactic, semantic or graphophonemic resemblance to text. Compound responses tended not to be meaningful and seemed to indicate a gap in attention to the need to adhere to the text for accurate oral reading.

Where there was dependence on graphophonemic skills to the exclusion of meaning clues, there was a tendency for nonword errors to occur and this happened far more in the responses of the sample of children than those of the adults. Again, any errors which were semantically inappropriate often contained a high graphophonemic resemblance, those which looked and sounded like the text being more inclined to be grammatical than meaningful.

Self-correction occurred most where semantic acceptability was low, more than where responses were ungrammatical, in this study lack of syntactic acceptability presupposes lack of meaning too; this was also true of observer intervention. Thus readers would accept errors which were ungrammatical or bore little resemblance to the text in other ways, so long as they were meaningful. This was very apparent in the sample of adults, but not so with the sample of children and may say something about differences in expectation of the reading task; at least some part of the adult sample expected reading to be meaningful whereas the children apparently from their error performance treated it more mechanically.

Where erroneous responses were grammatical and meaningful they also resembled the text graphophonemically, in particular the beginnings and endings of words, with simultaneous increases in both kinds of appropriateness. Where they fitted with neither grammar nor meaning they tended to look and sound like the text.

Syntactic and graphophonemic proximity changed their frequency together rather than in inverse proportions.

The children placed far less emphasis on meaningfulness all round than the adults, producing errors of all types which showed greater attention to graphophonemic detail and grammatical structure of text than to meaning. This was reflected in their infrequent correction and requests for help from the observer. Where they did ask for help, they had become completely lost for instance in the case of compound omissions, where perhaps a whole line or sentence had been missed out of the text and they could progress no further. The children relied to a greater extent than the adults upon identifying the beginning and ending of a word as an aid to achieving a correct response and having achieved that resemblance, would accept it even if it was meaningless.

The adults carried their attention to the beginnings of words through to errors which although resembling the text little in appearance and sound, were nonetheless meaningful in quite wide contexts. They also showed more evidence of prediction than the children, correcting particularly errors which were acceptable in preceding contexts only. The children's self-corrections again were more connected to sound and appearance than meaningfulness.

The analysis in this Chapter moved from a general examination in Chapter 5 of separate error characteristics made by each sample, to a look at the way those characteristics related to each other and the differences in the nature of the relationships between the two samples. Initial findings about the errors of the adult sample appeared to hold some paradoxes, in that there was greater and more successful attention to meaning alongside difficulties with responses as indicated by higher proportions of non-response errors; greater proportions of self-correction and also greater proportions of observer intervention than among the errors for the children. It seemed unlikely that these different kinds of behaviour would be contained together in the reading of individual subjects in the sample. It was thought that more probably they would be made by different groups of subjects.

It was decided therefore at this stage to proceed from the in-depth examination of error characteristics on a whole-sample basis in Chapters 5 and 6 to the errors in relation to parts of the adult sample. Although the aim from the beginning weas to discover groupings based directly on the data collected it seemed that an examination of the errors of the existing teaching groups (Tgroups) might prove fruitful as a first step. The reading behaviour of the adults in these groups was examined to see if any typified particular kinds of error behaviour and whether any reflected the behaviour of the children. This is done in Chapter 7.

CHAPTER 7. EXAMINATION OF THE ERRORS OF THE ADULT SAMPLE BASED ON THE LITERACY SCHEME TEACHING GROUPS.

INTRODUCTION.

Having examined the errors of both samples as homogeneous groups in some detail in Chapters 5 and 6, this chapter and those following are concerned with a closer look at the adult sample with a view to identifying within it, different approaches to the reading task and their possible effects in terms of successful reading or otherwise.

A start was therefore made with the groups of subjects from which data was collected. These groupings had been made by the Literacy Scheme organisation using readers' prowess on the Holborn Reading Test (Chapter 4, Section II) as a basis. Hereafter these groups will be referred to as Tgroups to distinguish them from later groupings and for ease of reference numerical labels will be used (see Table 7.0).

Table 7.0. Tgroup names and numbers.

Number	Name
1	Advanced
2	Spellers
3	Spellers/Midreaders (no group in sample)
4	Midreaders
5	Beginners/midreaders
6	Beginners
7	Slow learners

The group 'names' indicated in Table 7.0 were used by the Literacy Scheme organisers to describe their assessment of the reading standards of the participants. The groupings presupposed a continuum of good to poor reading ability and one of the Researcher's aims was to ascertain the validity of this. The errors made by the subjects so grouped were examined by the Researcher in the light of the main characteristics described in Chapter 5, with a view to confirming differences between the Tgroups and comparing them with scores on the other measures used.

Sections I and II contain an exhaustive examination of errors; for the sake of completeness every error category has been considered. Section III describes performance on the Comprehension and British Ability Scales and Section IV summarises the findings. Tables 7.1 - 7.14 appear in Appendix VIII.

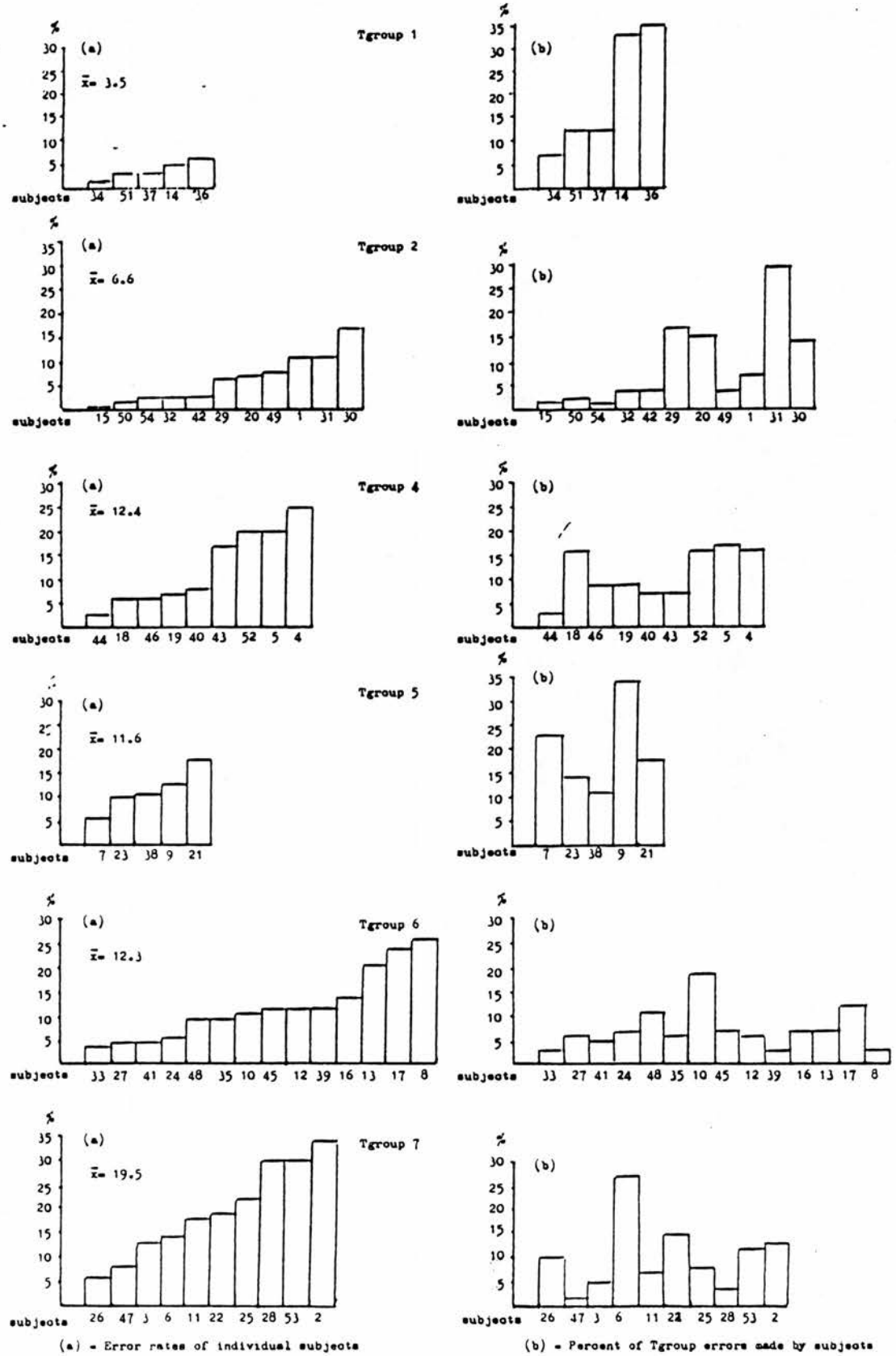
SECTION I. ERROR RATE.

Error Rate of Subjects in Different Teaching Groups.

The mean error rate of subjects in each of the six Tgroups was calculated (Figure 7.1) and it appears not unexpectedly, that Tgroups 1 and 2 had the lowest, and Tgroup 7, the highest mean error rate. A little less obvious was the lack of variation between the means of the three middle Tgroups.

In order to give a clearer picture of what contributed to the means of the individual Tgroups, the percentage of total errors for each Tgroup, made by each subject therein is shown in Figure 7.1 (b). The percentage error made by each of the individual subjects, in their Tgroups, is also shown (Figure 7.1 (a)). Differences can be seen, between the percentage of a Tgroup's total errors made by any one individual and the personal error rate of each subject in relation to the rest of his Tgroup is also shown. For instance, in Tgroup 1, two subjects between them made almost 40% of the total errors, although the rate of error for each was very little higher than the mean for the Tgroup. The reason for this, lies in the greater number of words read by these subjects. The relationship of error rate to number

Figure 7.1. Percentage of Errors Made By Sujects in Tgroups.



(a) - Error rates of individual subjects

(b) - Percent of Tgroup errors made by subjects

of words read can be seen in Figure 7.2. Three main groups are illustrated here. Those who read few words produced a high error rate and were stopped before going further, those who read few words with a low error rate having begun at level 4 and those who read a substantial number of words and whose error rates were low to medium. Tgroup identifiers are included in this figure. The pattern of error rate and number of words read by the individual Tgroups can be seen. For instance, most Tgroup 7 subjects read few words an produce high error rates, whereas all Tgroup 1 had relatively low error rates and read relatively few words. Tgroup 7 subjects would have begun with level 2 passages, relatively easy, and been unable to continue. Tgroup 1 subjects began at level 4, more difficult passages, leaving out levels 1 and 2.

Information about individual error rates was borne in mind during comparison of variations in proportion of error type made by subjects. The rate of error of an individual did not always relate to the type of errors made. It was decided therefore to examine individual proportions of error and other groupings as producing a more reliable guide to differences in the sample other than error rate or than proportions of error type made by teaching groups.

Percentage Error and Passage Level.

Levels of passage attained by individuals varied in all Tgroups, although in general more level 4 passages were read by Tgroups 1 and 2 and more level 2 passages were read by Tgroups 6 and 7 (see Figure 7.3).

In general, error rates were lower for level 4 than level 2 readers regardless of Tgroup, although the rates for level 4 readers in Tgroup 6 were higher than those for level 4 readers in Tgroup 1. There was little difference in error rate for level 4 readers in Tgroups 2, 4 and 5.

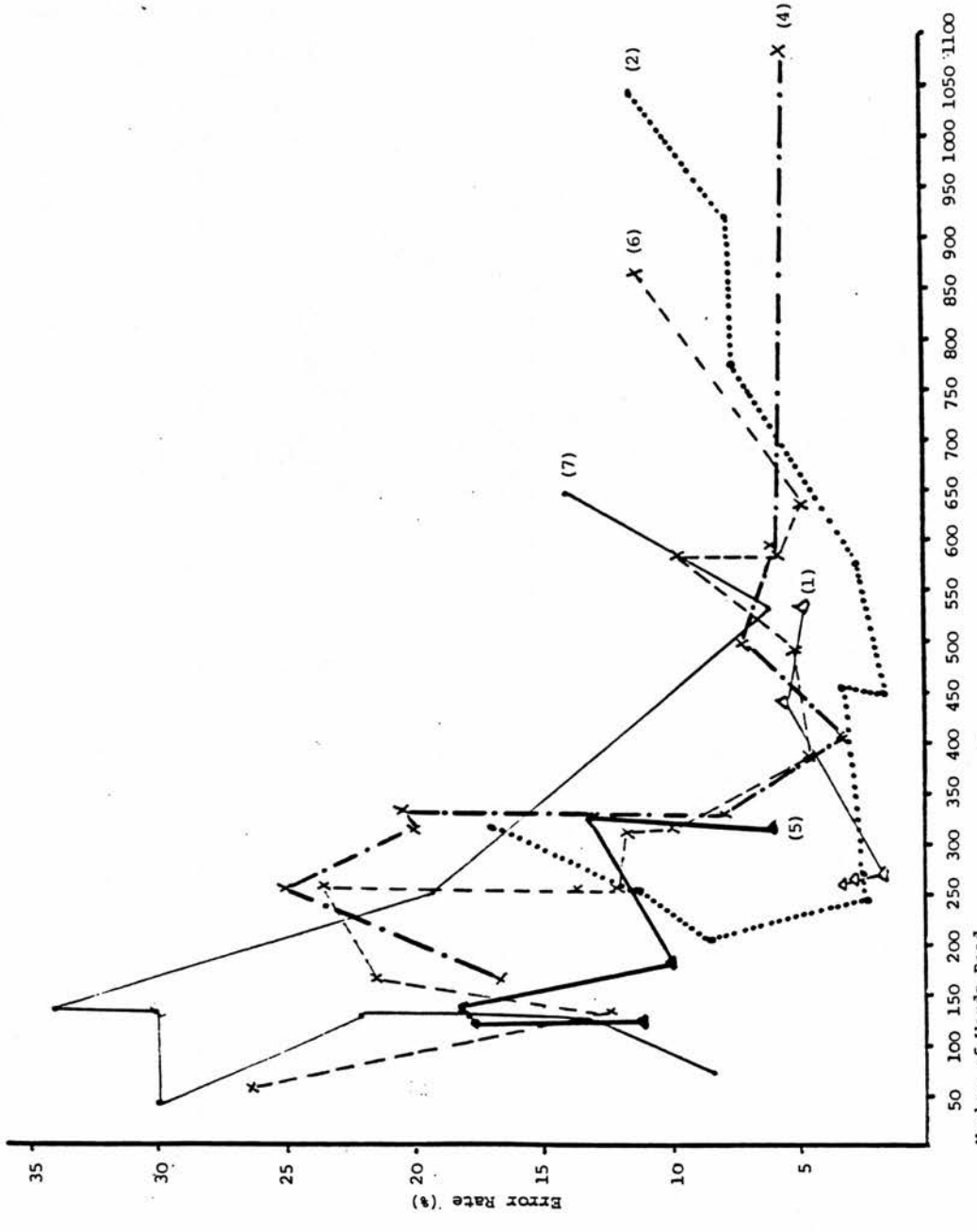


Fig. 7.2 Error rate and number of words read : by Tgroup
(Tgroup numbers in brackets)

Figure 7.3a. Error rate by teaching group.

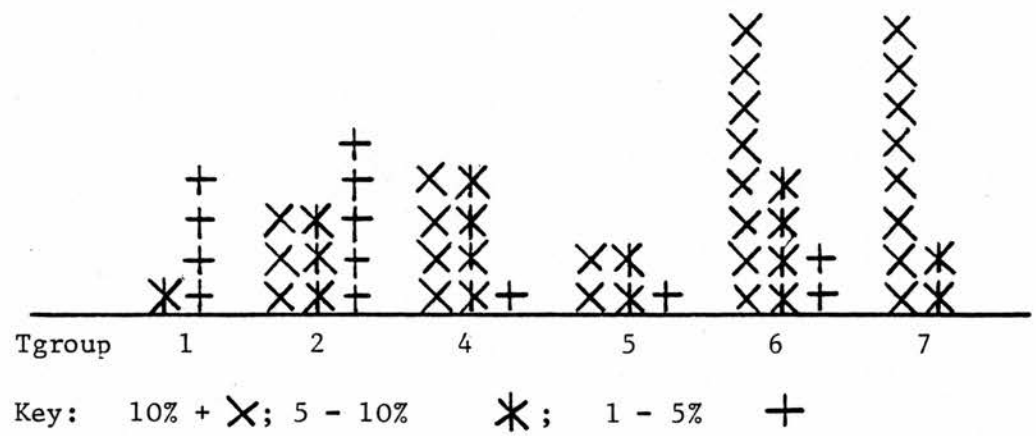
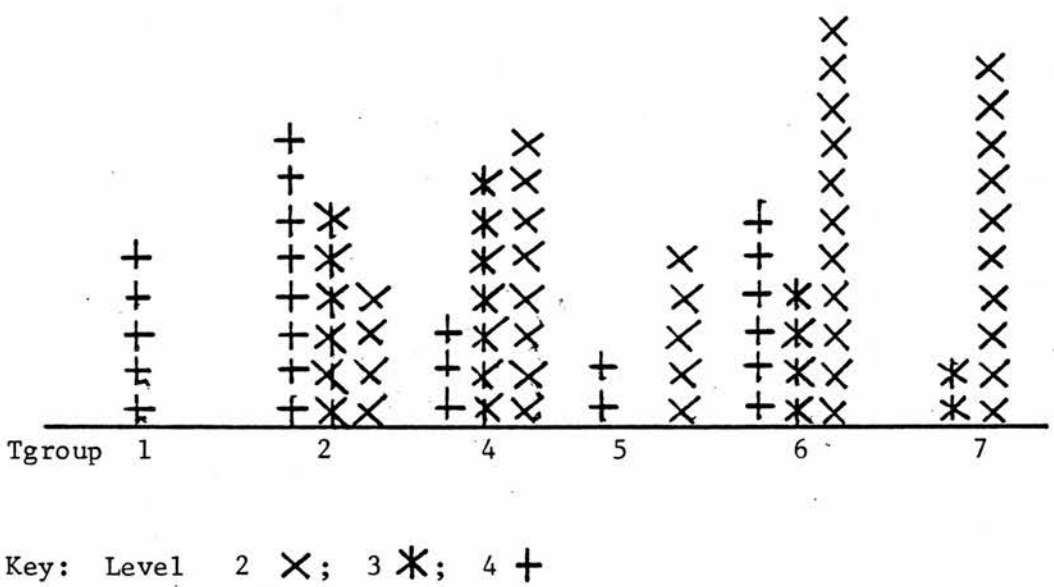


Figure 7.3b. Passage levels read by groups.



The following description of Tgroup behaviour is based on the assumption made by the Literacy Scheme that a continuum of success-failure existed between Tgroups 1 and 7. The hypothesis is that behaviour equated with Tgroup 1 would indicate strategies accompanying relative reading success, and that equated with Tgroup 7 would accompany reading failure. The groups in between would, from this assumption, be expected to show varying degrees of different reading behaviours equated with this continuum. It was found in fact that although the hypothesis held in places, there were several areas where the data was at variance with this expectation.

A. General Error Categories (Tables 7.1; 7.1 (a)).

Although levels varied, the greatest proportion of errors made by each Tgroup took the form of single word substitutions.

1. Tgroup 1 made fewer single substitutions (50%) and more single word insertions (18%) and compound omissions (7%) than all the rest.
2. Tgroup 4, although not making such a high proportion of insertions and omissions as Tgroup 1, made substantially more single word insertions and omissions than the rest.
3. Tgroup 5 made more single substitution errors (76%), no insertions or omissions and a relatively high proportion of non-response errors (9%).
4. Tgroup 6 showed a higher proportion of compound substitutions among their errors (17%) than any other Tgroup.
5. Tgroup 7 (supposedly the least competent Tgroup) made a greater proportion of non-response errors (14%) and 'tries' than other groups and even greater than the children.

Combined single and compound substitution errors accounted for between 75% and 85% of errors for all Tgroups except Tgroup 1, only 60% of whose errors were of this kind.

B. Grammatical functions (Table 7.2).

In general, the distribution of errors for different grammatical functions was similar in the data for each Tgroup to distribution in the whole sample of errors, with the following exceptions:

1. Tgroup 1 produced fewer errors for nouns (34%) and more for function words (34%) and verb modifiers (4%).
2. Tgroup 5 produced fewer errors for function words (9%) and more (25%) for noun modifiers.
3. Tgroup 7's behaviour was the reverse, producing more errors for nouns and fewer for function words.

C. Nonwords (Table 7.3).

On the whole there was a smaller proportion of recognisable words and more nonwords when reading ability (as indicated by the Tgroupings) was less. Exceptions were to be found among the errors of Tgroups 6 and 7 (see below and Figure 7.4.).

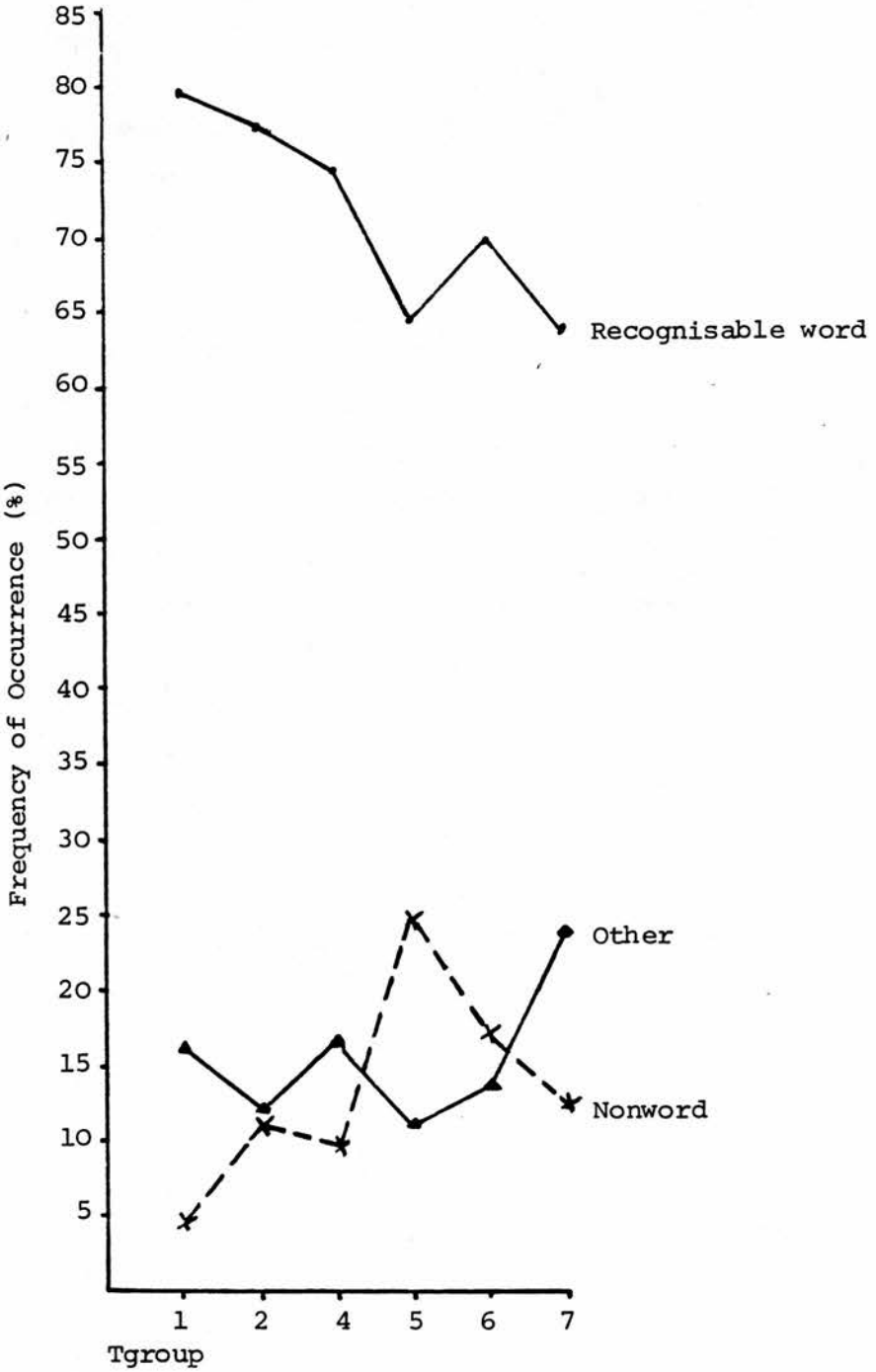
1. Fewer than 5% of the errors of Tgroup 1 were nonwords.
2. 80% of the errors made by Tgroup 1 and three quarters of those made by Tgroup 2 and 4 were recognisable words.
3. The highest proportions of nonwords were produced by Tgroups 5 and 6.
   a) A quarter of all the errors made by Tgroup 5 were nonwords compared to a fifth of the errors overall.
   b) Even so, the proportion of nonword errors mad by Tgroup 6 was lower than might have been expected had the the Tgroup labellings been a true continuum.
4. Almost a quarter of the errors made by Tgroup 7 were in forms other than could be identified as morphemes (24%) either recognisable or otherwise. Most of these were non-responses or tries, a greater proportion than those made by other Tgroups, and almost twice the frequency of those made by the children.

D. Syntactic and Semantic Acceptability.

D.1. Syntactic Acceptability (Table 7.4).

On examination of the percentages of total errors made by each Tgroup which were syntactically acceptable in any context, it can

Figure 7.4. Percentage occurrence of nonwords, recognisable words and other errors among the total errors made by each Tgroup.



be seen that quite a large proportion of the errors made by all Tgroups (60% is the lowest) were acceptable in the context of at least the prior or following part of a sentence. Almost all the errors made by Tgroup 1 were acceptable in the widest contexts possible without being completely correct. In the other Tgroups, apart from Tgroup 7, between 70% and 80% of the errors were syntactically acceptable in this way; even the total for Tgroup 7 was almost 60%.

1. More than 80% of the errors in each Tgroup were syntactically acceptable in some way. There was a difference of roughly 15% between the lowest and highest proportions in this respect; Tgroups 1 and 2 having the greatest percentages of syntactically acceptable errors.
2. The proportions of errors which were syntactically unacceptable, in any context, ranged from 4% in Tgroup 1 to almost 20% in Tgroup 7, of the total errors made by each group, the highest having been made by Tgroups 4 and 7, similar to the children's (20%). The differences in proportions for all but Tgroup 1 and perhaps Tgroup 2, do not appear to be of much note.
3. There was very little difference between the proportions of errors appropriate syntactically to either the context of the preceding or following part of a sentence, amongst Tgroups 2, 4, 5, and 6; between 13% and 17% for prior sentences and 12% and 14% for following sentences. Tgroup 1 made proportionately fewer errors with preceding or following context acceptability than the other groups, Tgroup 7 made fewer errors acceptable in preceding contexts (Figure 7.6 (a)). On further examination of the errors appropriate in preceding and following contexts, it was found that apart from Tgroup 1, where the number was very small, the preceding context errors in Tgroups 2, 4 and 5 were appropriate in contexts greater than those immediately preceding (although not a whole sentence), 30% of those made by Tgroup 6 and 10% of those made by Tgroup 7. A similar pattern emerged amongst the following context errors, except that as noted in chapters 5 and 6, the general overall percentage of

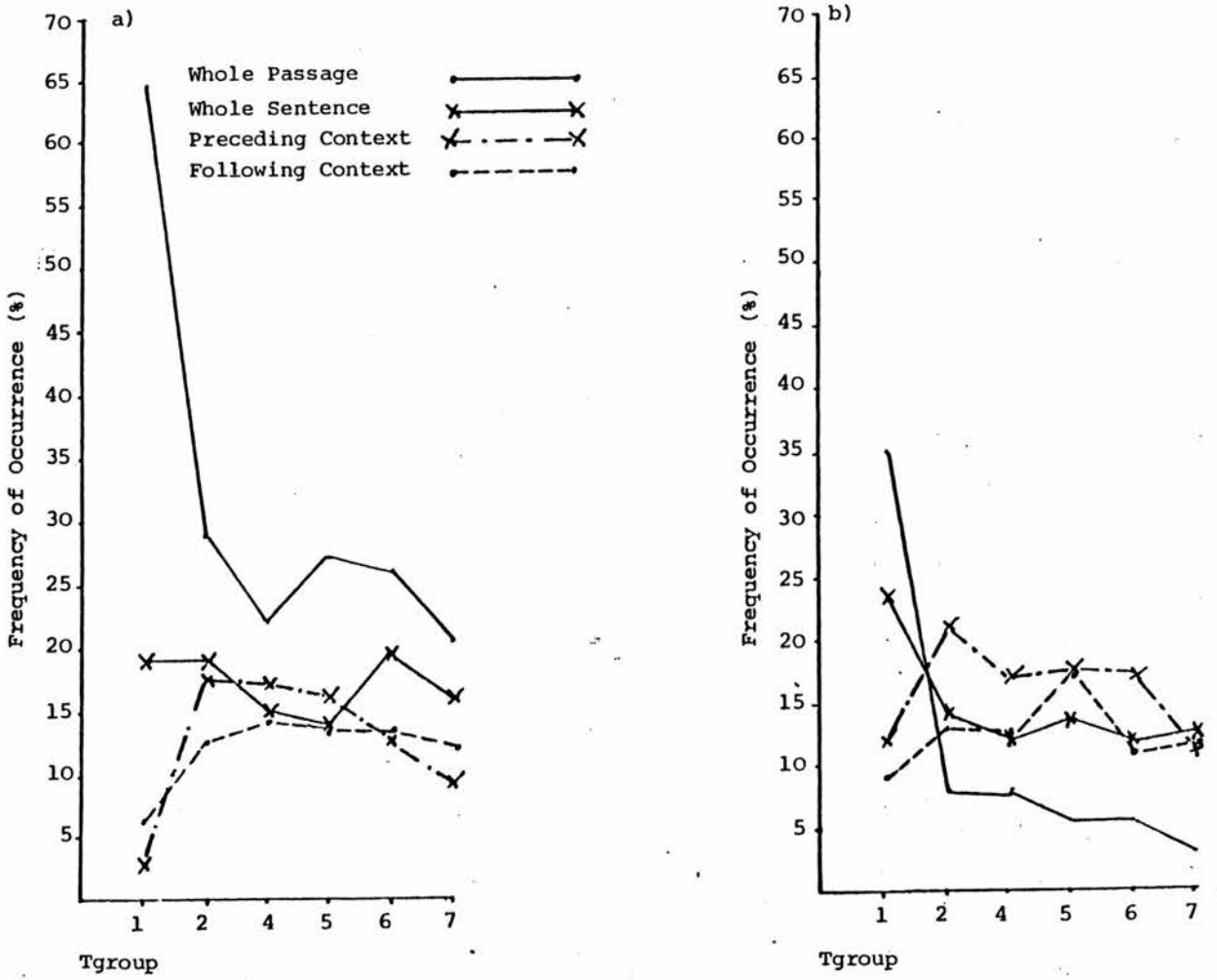
errors fitting with a part of the preceding context in addition to that following, was greater than for the preceding context counterparts. The percentages were between 50% and 60% this time, Tgroup 7 being on a level with the other groups in this instance.

4. When it came to acceptability at the level of a whole sentence or passage, a demonstrably greater proportion of the errors made by Tgroup 1 (65%) than those of the other Tgroups (20 - 30%), fitted with the passage context, although this difference was not so dramatic at the level of the sentence. Where errors were acceptable in the context of a total sentence, the range for Tgroups other than Tgroup 1 was between 14% and 20%.

D.2. Semantic Acceptability (Table 7.5).

1. Only Tgroup 1 made a greater proportion of errors which were meaningful in whole passage (35%) rather than sentence (24%) contexts. Their levels for both were higher than those of any other Tgroup. For the rest, acceptability in sentence contexts was between 12% and 14% and in passage contexts between 3% and 8% (Figure 7.6 (b)). Because of the great proportion of their errors which were semantically acceptable in wider contexts, fewer of Tgroup 1's errors were semantically appropriate to parts of sentences preceding or following them, than the other Tgroups.
2. Between 30 and 40% of errors for all Tgroups except Tgroup 1, were semantically unacceptable, compared to 12 - 20% which were syntactically unacceptable. With respect to semantic unacceptability there was little difference between the levels of inappropriateness of Tgroup 2 and all the rest, only 16% of the errors of Tgroup 1 were semantically unacceptable.
3. Roughly 45% of the errors of Tgroups 4 to 7 were semantically acceptable in some context. Sixty percent of the errors made by Tgroup 2 were of this kind and more than 80% made by Tgroup 1. There was a difference of 40% between the lowest and the highest in this respect. All Tgroups produced more semantically acceptable errors than the children (39%).

Figure 7.6. Frequency of errors with different levels of a) syntactic and b) semantic acceptability made by each Tgroup.



4. Tgroup 7 showed a similar proportion of preceding context errors to that of Tgroup 1; but this was because their errors in general were less, rather than more, meaningful than those of the other groups. This Tgroup made proportionately fewer errors which were acceptable in sentence and passage contexts than any other Tgroup. Eighteen percent of the errors of Tgroup 7 were not classifiable under the semantic heading at all. These were non-responses.

Of the errors which were semantically acceptable in preceding or following contexts, it was found that as with syntactic appropriateness, a proportion of each kind was meaningful in the context of more than a part of a sentence immediately preceding or following. Again, a greater percentage of those errors which fitted with the following part of a sentence were also meaningful in the context of a proportion of what went before, than was the case the other way about with 'preceding context' errors.

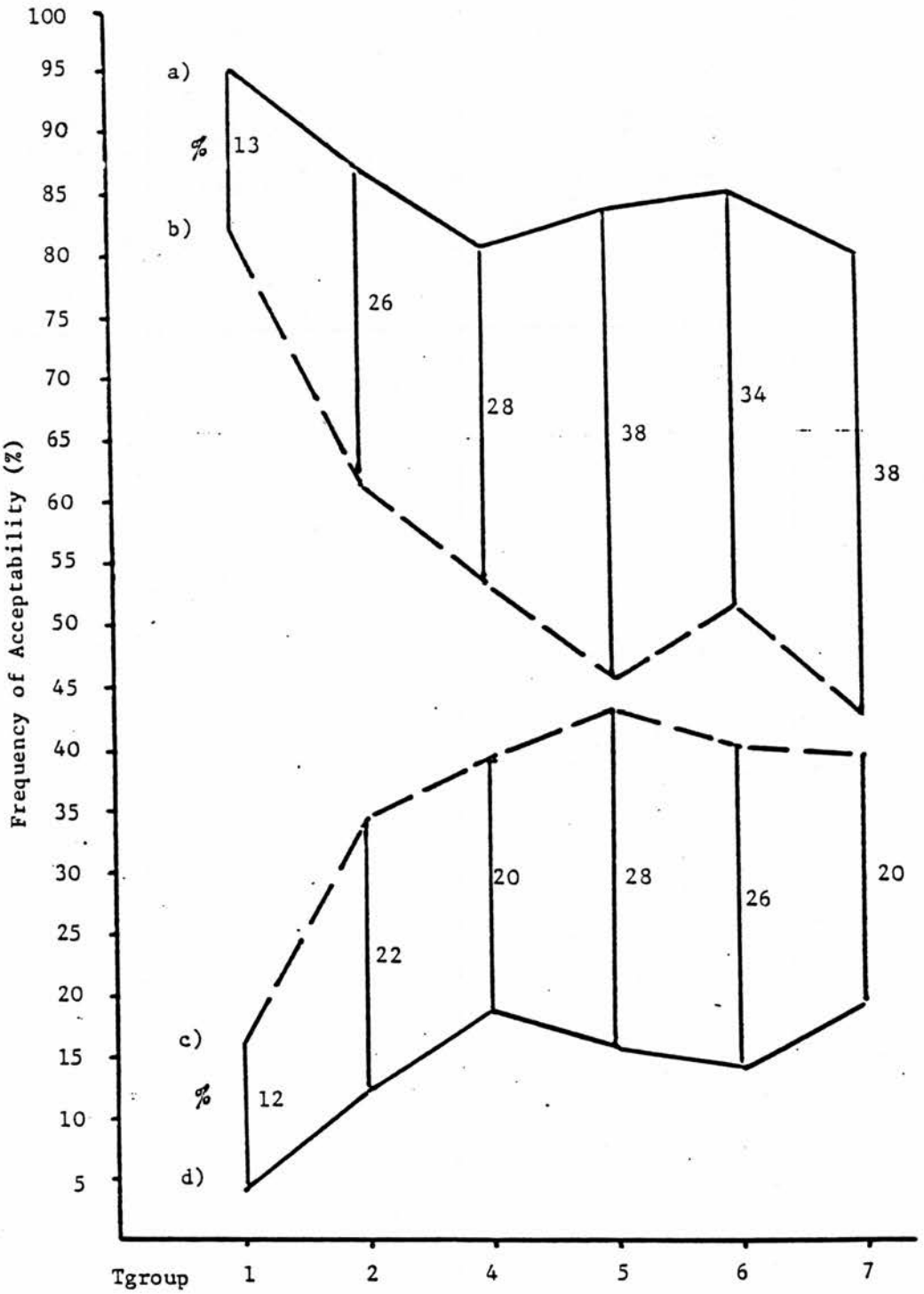
More errors fitted with the prior part of a sentence and no more, than fitted in the same way with a following portion alone. The preceding context errors would be more likely to fit to the end of a following clause or surrounding context, usually the next word, than a phrase, whereas the appropriate preceding pieces of contexts attached to following context errors, varied more in extent and included phrases as well.

Although the percentage of Tgroup errors fitting with portions of a sentence less than the complete preceding or following part varied, none rose above 6%. All Tgroups made similar proportions of these to syntactic errors of the same kind.

Relation Between Syntactic and Semantic Acceptability (Figure 7.7)

Students tended to produce errors which were grammatically acceptable rather than meaningful. Syntactic acceptability in all contexts was consistently higher Tgroups than semantic acceptability, but there was a noticeably greater difference between the rates of syntactic and semantic acceptability in Tgroup 7 (38%) than in Tgroup 1 (13%). All the Tgroups made

Figure 7.7. Differences between syntactic and semantic acceptability and unacceptability among Tgroup errors.



Key: a) Acceptable in some way syntactically
b) Acceptable in some way semantically
c) Unacceptable semantically
d) Unacceptable syntactically

substantially smaller proportions of semantically than syntactically acceptable errors at the passage level; the greatest difference was in the proportions among Tgroup 7 errors although all but Tgroup 1 errors showed large differences too.

1. The difference between levels of syntactic and semantic inappropriateness increased from Tgroup 1 to Tgroup 7 from 12% for Tgroup 1 to 27% for Tgroups 5 and 6. Semantic inappropriateness levelled off in Tgroups 6 and 7, having become proportionately greater from Tgroup 1 to Tgroup 4. Syntactic inappropriateness was greater however, amongst the errors of Tgroup 7 (Figure 7.8).
2. Errors more often fitted simultaneously syntactically and semantically with prior portions of sentences than with following portions, although the difference was very small both for Tgroup 1 and Tgroup 7. Both Tgroups made a greater proportion of errors syntactically acceptable in following, than in prior context errors, while there was almost no difference in the proportions of semantically appropriate errors in the two kinds of context made by the same two Tgroups (Figure 7.6 (a) & (b)).
3. Syntactic acceptability in whole sentence contexts, was more frequent than semantic, although the difference was not as great as between syntactic and semantic acceptability in whole passage contexts.
4. Errors which were syntactically acceptable in passage contexts formed the greatest proportion of errors in all the Tgroups. Even among the errors of Tgroup 7 there were more syntactically acceptable than unacceptable errors. Sixty five percent of the errors of Tgroup 1 were in this category and 20% of those of Tgroup 7.
5. Errors showing semantic acceptability in passage contexts formed the smallest proportion of errors for each Tgroup; except Tgroup 1. In general these proportions were lower than those of errors which were totally unmeaningful and ungrammatical except in Tgroup 1. This notwithstanding, Tgroup 1 made less semantic (25%) than syntactic (65%)

passage-acceptable errors. They also made more errors which were semantically rather than syntactically acceptable in all other contexts. For the other Tgroups, semantic acceptability remained almost consistently lower than syntactic.

D.3. Simultaneous Syntactic and Semantic Acceptability (Table 7.6).

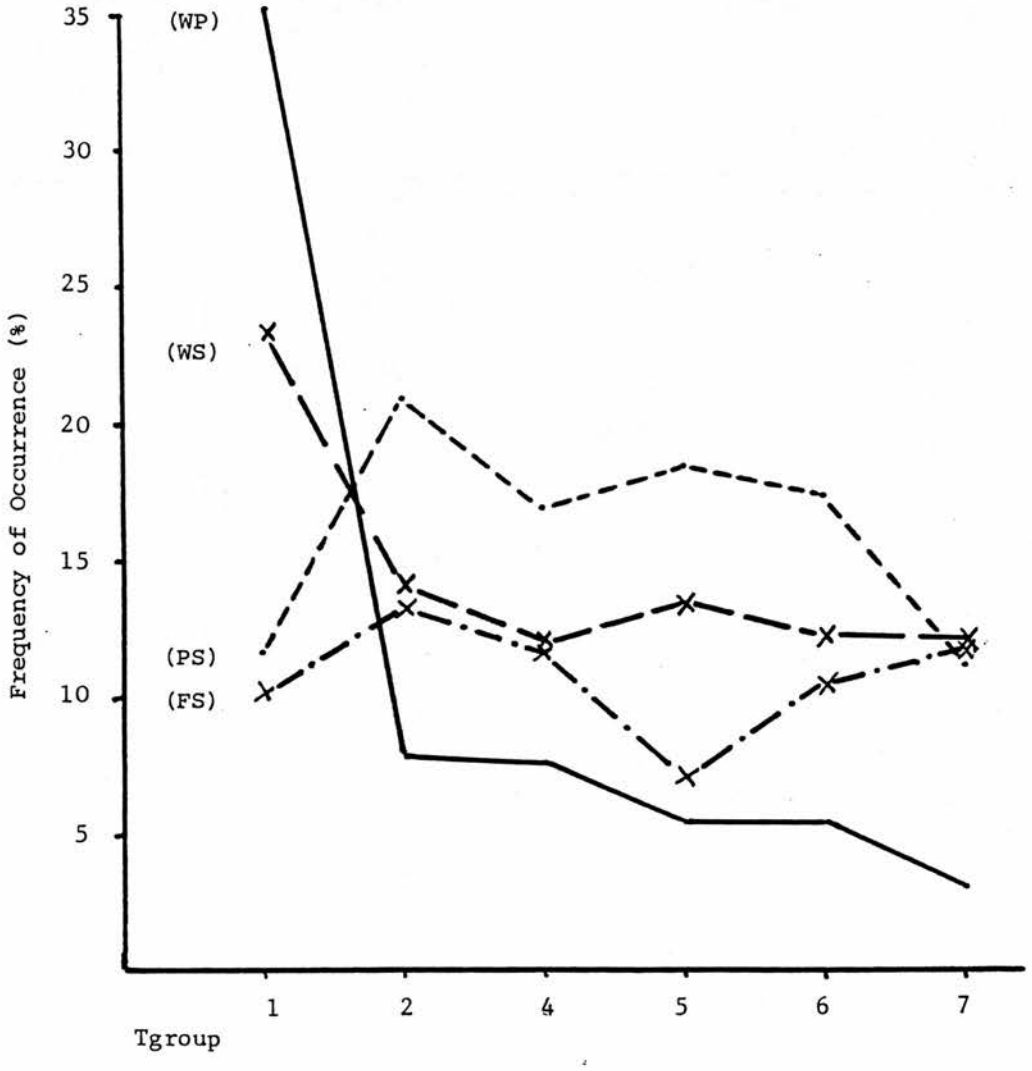
1. All the Tgroups made more errors which were acceptable in preceding rather than following contexts. Tgroup 7 made similar proportions of each. Tgroup 1 only, made more passage or sentence acceptable errors than preceding or following context ones.
2. For all Tgroups except Tgroup 1, the greater proportion of errors was acceptable both syntactically and semantically in the context of a whole sentence rather than a complete passage. Tgroup 1 made greater proportions of errors acceptable in both these contexts, than the other Tgroups and in addition the positions of passage and sentence acceptability were reversed; so that they also made more errors which were acceptable in passage than in sentence contexts (Figure 7.8). nonetheless there remained among the errors of Tgroup 1, more syntactic than semantic acceptability at whole passage level.

E. Graphic and Phonemic Proximity.

E.1. Graphic Proximity (Table 7.7).

1. A high proportion, approximately 80%, of errors made by all Tgroups except Tgroup 1 showed some graphic similarity. Only just over half the errors of Tgroup 1 showed any such relationship with the text.
2. The single most frequent kind of error made by all Tgroups was that where the beginning (sometimes in combination with other parts) of an erroneous response corresponded graphically to that of a word in the text. Half the errors made by all Tgroups except Tgroup 1, where the proportion was smaller possessed this characteristic. Tgroup 7 errors showed a higher proportion of beginning-only (22%) correspondence than either the other Tgroups or the children.

Figure 7.3. Differences in levels of simultaneous syntactic and semantic acceptability between Tgroups.



Key: (WP) - Whole Passage Acceptability
(WS) - Whole Sentence Acceptability
(PS) - Prior Sentence Acceptability
(FS) - Following Sentence Acceptability

3. Between 16% and 24% (about a fifth) of the errors made in Tgroups, had either beginning, middle or end only in common with the text; the greatest proportion showing beginning proximity.
4. Just over a third of the errors had combinations of two parts (for example beginning and end, or beginning and middle) in common with the text.
5. Tgroup 1 and Tgroup 7 made smaller proportions than all the rest of errors which were almost identical; similar to the text except for one grapheme.

E.2. Phonemic Proximity (Table 7.8).

1. Phonemic proximity was distributed amongst the errors of the Tgroups in much the same way as graphic proximity. The incidence of phonemic proximity was on the whole a little lower than that of graphic proximity at all levels, except where an error showed only one element different from the text.
2. Frequencies of very close phonemic proximity were higher than those of graphic for all Tgroups. That is to say, more errors were produced which sounded almost like a correct response, than which looked like a correct response to the same degree.
3. More than twice as many of the errors of Tgroup 1 (16%) when compared with those of the other Tgroups, showed no phonemic similarity with the text at all. Tgroup 1 produced errors with phonemic proximity less frequently than the other Tgroups.
4. Tgroup 7 produced a smaller proportion of 'nearly similar' errors both graphically and phonemically than all the rest.

E.3. Simultaneous Graphic and Phonemic Proximity (Table 7.9).

1. The proportions of errors showing simultaneous graphic and phonemic proximity were lower all round than those possessing either of the individual characteristics, although the distribution followed a very similar pattern. Exceptions to this were a) Tgroup 7 made fewer single-element-different errors, and b) Tgroup 1 made substantially fewer errors resembling text in beginning and combination proximity.

2. Less than 5% of all the errors for all the Tgroups showed neither graphic nor phonemic proximity with the text, slightly greater proportions of these being made by Tgroups 1 and 2 than other groups.
3. A greater proportion of Tgroup 7's errors (23%) than the other Tgroups had beginnings only graphophonemically similar to the text.
4. Tgroup 1 made a smaller proportion of errors with beginnings (in combination with other parts) similar to the text than the other Tgroups.
5. All Tgroups, except Tgroup 7, made similar proportions a) of errors showing a single element different to the text both graphically and phonemically, and b) of those with beginning only proximity.
6. Almost 40% of the errors of Tgroup 1 could not be described in this way; these were insertions and omissions.

F. Self-correction and Intervention (Table 7.10).

The errors of Tgroup 1 were either uncorrected or corrected without help. Those of Tgroup 7, were uncorrected or gave rise to intervention.

1. Self-correction was highest in Tgroups 1 (25%) and 2 (29%) and lowest in Tgroup 7 (9%). Self correction in Tgroups 1 and 2 was twice that of all other groups, where about 12% were corrected without help.
2. Uncorrected errors occurred most in Tgroups 1 (72%) and 4 (74%). For the other Tgroups, between 55% and 65% of errors were uncorrected. The proportion of errors left uncorrected by the children in comparison was 83%.
3. Observer intervention was used most in Tgroups 5 (32%) and 7 (31%) and least in Tgroup 1 (3%).

SECTION III. COMPREHENSION AND BRITISH ABILITY SCALES.

Comprehension (Table 7.11).

Performance by the subjects in the Tgroups on comprehension and other scales largely reflected their patterns of error in that those who performed well on language based questions also produced errors which were semantically appropriate. In Table 7.11 it can be seen that Tgroups 1 and 2 produced accurate answers to comprehension questions and that most subjects in Tgroups 6 and 7 were less competent in this way. It is noticeable that apart from Tgroups 1 and 7 there were variations in levels of performance among the individual subjects in the other groups, as there were in the kinds of errors they produced.

British Ability Scales (Tables 7.12 - 7.14).

Few subjects in any group, with the exception of Tgroup 2, performed well on the short term memory scale (Table 7.12). Most in all except Tgroup 7 producing medium, group 2, scores.

There were interesting differences between Tgroup scores for word reading (Table 7.13) and definitions (Table 7.14). Apart from Tgroup 1, where word reading scores were good, there was a fairly even spread of word reading achievement, more than half of even Tgroup 7 producing medium, group 2, scores. There was far less competence all round however, when it came to definitions, the majority of subjects in most Tgroups achieving poor or only medium scores. Even so, some subjects in all except Tgroup 5 produced high, group 3, definition scores.

An anomaly in the case of both scales was Tgroup 5, where scores were lower than might have been expected on the continuum from Tgroup 1 to Tgroup 7.

SECTION IV. SUMMARY AND CONCLUDING COMMENTS.

1. TGROUP CHARACTERISTICS

There was little difference between the teaching groups except for Tgroup 1 and Tgroup 7. When passage level was used as a guide to competence, more level 4 passages were read by Tgroups 1

and 2 and level 2 passages by Tgroups 6 and 7; level 4 passages were more difficult than level 2 when measured against a readability scale. Apart from this the levels of passages read varied from subject to subject in each group although the highest rates of error were made by people in Tgroup 7, and Tgroups 1 and 2 had lower mean error rates than the rest.

Proportions of most kinds of error made varied little from group to group, especially Tgroups 2, 4, 5 and 6 although in general syntactic and semantic acceptability decreased towards Tgroups 6 and 7, while proportions of uncorrected errors became greater. Tgroup 4 produced an anomalously high proportion of uncorrected errors and Tgroup 5 experienced more frequent intervention than expected. There was a notable difference in the characteristics of the errors of Tgroups 1 and 7 from each other and the rest. Differences in the proportions of error types between the groups were reflected in comprehension scores and performance on other scales.

Tgroup 1 produced a relatively high proportion of single word insertions and omissions along with a lower proportion of single word substitutions than the other groups. They produced fewer errors for nouns and more for function words. The syntactic and semantic acceptability of their errors was high, mainly at passage and sentence level, with few errors being acceptable in preceding or following contexts. Their errors showed relatively small proportions of beginning graphophonemic proximity, and more than twice the proportion of errors with no phonemic proximity , of the other groups. Almost half of Tgroup 1's errors could not be measured for graphophonemic proximity at all by virtue of being insertions or omissions. Both definition and word reading ability were good in this group.

Tgroups 1 and 2 showed the greatest proportions of syntactic acceptability among their errors and they had the highest rate of self-correction. Most subjects in both groups produced good comprehension scores, while Tgroup 2's definition and word reading scores were not so consistently good as Tgroup 1.

Tgroups 1, 2 and 4 produced very few nonwords when compared with the other groups.

Tgroup 4 produced proportionately more single word insertions and omissions than the rest, although not such a great proportion as Tgroup 1. This group's errors showed relatively high syntactic unacceptability and a high proportion remained uncorrected. Comprehension scores varied here, short term memory scores were mainly average, while word reading ability varied from poor to good. Definitions scores in this group were most often poor.

Tgroup 5 made a comparatively high proportion of single substitution errors but no insertions or omissions at all. They also produced a relatively high proportion of errors for noun modifiers and a high proportion of errors giving rise to observer intervention. This group produced only poor to medium scores on both word reading and definitions scales.

Tgroups 5 and 6 produced the highest proportion of nonwords of all the groups.

Tgroup 6 errors contained more compound substitutions relative to those of the other groups. Interestingly, a proportion of subjects in this relatively "low" expected ability group produced high scores on both word reading and definitions scales, although most produced poor definitions results.

Tgroup 7's errors were characterised by a greater proportion of non-response errors than other groups', but relatively few errors for function words (unlike Tgroup 1) and a greater proportion for verb modifiers. They produced a relatively low proportion of both nonword recognisable word errors coupled with a relatively high degree of syntactic and semantic unacceptability when compared to the other groups'. Also, although their 'wider' and following context errors were similar to other groups', relatively few of their errors were acceptable in preceding contexts and were in general, less meaningful than those of other Tgroups.

This group's errors contained higher proportions of beginning only graphic and phonemic correspondence than those of either the other Tgroups or the children. They made a slightly higher proportion of errors with key-sound correspondence than the others. Tgroup 7 also produced the lowest proportion of self-corrected errors; lower even than the children's. They

showed relatively high no-correction and intervention compared to the children's high no-correction and low intervention. Not all the subjects in this group, as might have been expected, produced low comprehension scores, some achieving medium to high scores at the reading levels they achieved. Word reading ability was either poor or medium and perhaps significantly in the light of the errors they produced, definitions ability was low for almost all.

Although the frequencies of self-correction and semantic acceptability among Tgroup 7's errors were relatively low, similar to the children's, unlike the children their errors showed relatively low graphophonemic proximity with an emphasis on beginning-only proximity.

2. DISCUSSION.

Subjects in Tgroup 1, the 'advanced' group, and Tgroup 7, the 'slow learners', and to a lesser extent Tgroup 2, the 'spellers', were differentiated by the groupings made by the scheme, particularly in their error rates and the degree to which their errors were syntactically and semantically acceptable. The proportions of error types made by the middle groups, with the exception sometimes of Tgroup 5, were very similar.

Insertions appeared in the repertoires of people in Tgroups 1 and 2 most frequently and non-response errors in those of Tgroups 6 and 7.

In Tgroup 1 the main characteristic was independence - errors being either corrected without assistance or left. In Tgroup 2 however, although there was a high rate of self-correction, there was also more intervention than in Tgroup 1. Tgroups 5 and 7 appear to have been more intervention-dependent than the others, with the rate of self-correction in Tgroup 7 being particularly low.

None of the Tgroups, even Tgroup 7 corresponded to the pattern of self-correction produced by the children where independence was maintained alongside a low (9%) rate of self-correction and intervention. There was a clear difference

between the adults and the children here (see Chapter 6 also). All except the most competent group (according to the scheme assessment) of the adults (Tgroup 1) received substantially more observer intervention than the children. One implication here might be that even adults experiencing quite severe difficulties showed greater awareness of their errors than the children. Another possible explanation could be a greater reticence on the part of the children when asking for help.

Some of the occurrence of errors for function words, verb and noun modifiers described in Chapters 5 and 6 would be explained here in that Tgroup 1 produced more function words, Tgroup 7 more verb modifiers and Tgroup 5 more noun modifiers. Errors for these grammatical functions were not evenly distributed, but the groups mentioned made proportions great enough to skew the totals.

The relatively small proportion of prior context errors (10%) made by Tgroup 7 which fitted in to any extent with following contexts might be taken to suggest that they were relying more heavily than the rest of the sample on what went before rather than making use of prediction. Other groups having shown higher levels of preceding context errors which fitted in with some following context were perhaps making more use of prediction than the slow learners.

All except Tgroup 1 relied heavily on graphic information to achieve responses, even though not always accurate, and Tgroup 7 were the least successful. In the case of Tgroup 1, 40% of the errors could not be classified under the heading of graphic proximity, taking the form of insertions and omissions. Performance on comprehension and BAS scales largely followed the patterns described in Chapter 5, so that groups with high semantic acceptability among their errors performed well on comprehension and definitions scales, this was mainly Tgroups 1 and 2, while word reading appears to have related to the use of graphophonemic information. More people in the middle groups produced good scores on this than the definitions scale, which would fit with the errors they produced.

This was taken to mean that if there were differences between subjects in the middle groups, they must lie in the quality rather than the quantity of errors made by individuals and that when searching for common areas of difficulty, it would be necessary to find a way of comparing all subjects and error variables simultaneously.

The lack of distinction between the Tgroups shown in the analysis, in the light of the Researcher's own experience of individual differences within the Tgroups during the collection of data, seemed to suggest greater differences within and between Tgroups. This leant support to the decision to seek more appropriate groupings based on common reading strategies. Cluster analysis was considered as a method of grouping but was found to be inappropriate because here, it was necessary to group errors and subjects simultaneously in the same clustering.

A method was sought therefore, whereby the percentage of each individual subject's errors which fell into certain chosen categories, could be juxtaposed with errors in the same category made by other subjects, and connections sought between the levels of occurrence of different kinds of errors, across the error repertoire of the whole sample of subjects. Scores in BAS scales and on other tests used, might be cross-tabulated with this information. Latterly, an effective way of obtaining some of this information, and grouping subjects and errors was found in 'correspondence analysis' - the results of which are reported in Chapter 8.

CHAPTER 8. EXAMINATION OF ERRORS AND OTHER SCORES OF INDIVIDUAL SUBJECTS WITH A VIEW TO IDENTIFYING AND GROUPING DIFFERENCES IN APPROACH TO READING.

INTRODUCTION.

Having analysed the errors made by the Tgroups and found that

a) there was little difference between the kinds of errors made by groups 2 to 6, and

b) that by dividing them in this way, for teaching purposes, the effectiveness of possible teaching methods might be lessened, it was thought that a more effective and more qualitative way of grouping might be found, based on the strategies used by individuals as illustrated by the kinds of errors they made when reading. If groups of this nature could be identified it might then be possible to design methods of teaching to accommodate them.

It was established in Chapter 7 that:

1. There were consistent differences in percentage occurrence of different kinds of error between groups 1 and 7 and the rest.
2. Tgroup 1 subjects read level 4 passages and Tgroup 7 mainly level 2.
3. The middle Tgroups, 2, 4, 5 and 6 read a mixture of passage levels, had more mixed error rates and also made a variety of different combinations of errors.

The next step was to examine the occurrence of different kinds of errors in the reading of individuals with a view to finding ways of grouping the subjects more effectively. It was thought also that errors of deviant individuals within the original teaching groups might well relate to each other across teaching group boundaries.

Initially, a manual analysis was begun, as a basis for identifying clusters, using what seemed to be the most prominent error types to compare with other behaviour. The number of variables involved in this procedure made it cumbersome and time consuming, so that other methods were sought. Eventually correspondence analysis was used as a way of obtaining general groupings which in essence upheld those of the manual analysis. It was a wholly qualitative procedure but it did show some important differences in strategy which appeared mainly to stem from variations in ability to use semantic information over and above, or as an adjunct to, other skills like graphophonemic identification and knowledge of grammatical structure.

The main advantage correspondence analysis had over other methods of analysis was the ability to group subjects and error variables simultaneously (Appendix XI). The groups which emerged are described in Section I. Some of the findings by this method linked with scores on Comprehension and BAS scales, and these have been included in the tables of error percentages for further illumination.

Tables 8.1-6 show the subjects and variables most closely related to each of the first three axes of the correspondence analysis. Because these three axes accounted for most of the variation it was thought unnecessary to pursue the analysis to further axes. The error variables are arranged in order of the amount of variance expressed from highest to lowest and from left to right in the tables. The subjects are arranged from top to bottom in order of correlation with a given axis, the closest at the top. The actual amounts of variation involved are shown in Tables 8.1 (a) - 8.6 (a).

In each case in Tables 8.1 - 8.6, section (i) shows subjects with a positive and section (ii) a negative relationship to a given axis. For the purpose of this study there is no significance in the 'positive' vs 'negative' labels; they simply illustrate differences between groups of subjects.

The mean percentage for each variable was calculated for the groups and is a way of showing clear general contrasts between the groups. They are illustrated in Figures 8.1. - 6. The vertical axes show the average frequency of errors made by individuals in the group as a percentage of the total errors made by each group.

Subsequently, in order to provide a clearer picture of the adult groupings, adult subjects appearing on more than one axis were removed and mean proportions of error types recalculated. At this point error variables appearing on all three axes were included for each group and are shown in Table 8.8.

Section I describes the nature of the groupings arrived at by the correspondence analysis, Section II focusses on the scores achieved on comprehension and the other scales, examining the relationship of these to the correspondence analysis groupings, Section III describes briefly how the groupings related to prior judgements of progress made by Literacy Scheme tutors, Section IV describes a further analysis and Section V is a summary of the findings.

SECTION I. GROUPINGS OF SUBJECTS AND ERRORS ON THE BASIS OF THE FIRST THREE AXES OF THE CORRESPONDENCE ANALYSIS.

PART 1. Adults as Grouped by the Correspondence Analysis.

1. The First Axis. Groups (a) and (b). (Table 8.1, Figure 8.1)

Group (a) contained 7 and Group (b) 19 subjects. Three of the subjects in group (a) also appeared other groups as did 8 of the subjects in group (b). Both groups were characterised by the frequent production of single substitution errors together with errors which remained unchanged either by self-correction or intervention by the observer. The incidence of these characteristics was less in the behaviour of group (a) subjects than in that of group (b).

Group (a)

Group (a), showed what appears to be a lack of confidence in reading.

1. They produced simple substitution errors which remained unchanged either by self-correction or intervention by the Observer.
2. (a) They frequently produced non-response errors and
   (b) frequently required assistance from the Researcher (These characteristics tended to apply to the same errors).
   In other words they often met difficulties in their reading which caused them either to hesitate uncomfortably at some length, or to ask directly for help from the observer, rather than using more independent ways of dealing with their problems. This kind of behaviour occurred about as often as did substitutions and unchanged errors.
3. They made some but relatively little, use of graphophonemic information.
4. The mean error rate in group (a) was almost 25%.

Group (b)

1. The greatest proportion of the errors of this group were single substitutions which remained unchanged by the subjects as they continued reading.
2. There was an emphasis on the relatively successful use of graphophonemic information.
3. They achieved a certain amount of meaningfulness in their reading as illustrated by the proportion of their errors which were acceptable semantically in whole sentence contexts.
4. They produced few non-response errors and required very little help from the observer in moving through the texts.
   Points 2, 3 and 4 suggest that they were relatively confident readers.
5. They produced compound substitutions.
6. The mean error rate here was around 10%.

The readers in group (b), as illustrated by the low incidence of observer intervention, were prepared to make mistakes and were using a fairly confident, if not completely efficient system. The use of compound substitutions together with their semantic accuracy implies the beginning of emphasis upon meaning while giving insufficient attention to the precise nature of the text.

Comparison

A high proportion of the errors of both groups were uncorrected by the readers, but group (a) required help from the Observer in such cases in contrast with group (b) who left their errors unchanged. In addition, group (a) produced smaller proportions of both single and compound substitutions than group (b).

In the reading of group (b) the use of graphophonemic information was fairly constant for all subjects. Between a quarter and a third of the errors of individuals in this group had only a single graphophonemic element different from the text. In group (a) there were wider variations between the individuals in this respect and a lower average. Group (b) produced more semantic sentence acceptability than group (a) (Figure 8.1.).

Individual variations notwithstanding, all readers in both groups made great use of graphic and phonemic information with varying degrees of success, group (b)'s responses having been more consistently successful in this respect.

Group (a) had a higher rate of error (25%) than group (b) (10%).

2. The Second Axis. Groups (c) and (d). (Table 8.2, Figure 8.2)

Group (c) contained 13 and group (d) 4 subjects. Three of the subjects in group (c) and 3 of those in group (d) appeared in other groups. Groups (c) and (d) were clearly differentiated, although a fairly large proportion of both groups' errors were semantically unacceptable.

Group (c)

1. The group was characterised by many of its errors being grammatically acceptable in whole passage contexts and a relatively large proportion being meaningful in whole passage contexts as well.
2. These subjects quite frequently corrected their errors without help.

3. They had a tendency when reading to insert extra words into the text where none appeared on the page.
4. About a quarter on average of the errors produced by the readers in group (c) were semantically unacceptable.
5. The mean error rate for group (c) was less than 5%.

These were quite competent readers who were using their implicit knowledge of the structure and meaningfulness of language to help them read. Their use of insertions could be taken to be an indication of confidence, being used as a way of making the text fit more closely with the natural speech patterns of the reader.

Group (d)

1. A good proportion of the errors of group (d) were semantically and to a lesser extent, syntactically unacceptable.
2. They produced no errors which were meaningful in whole passage contexts and few which were similarly grammatical.
3. Few of their errors were self-corrected.
4. There was an emphasis in their strategies upon the identification of beginnings of words graphophonemically but an inability to move further towards an acceptable response.
5. The mean error rate for this group was about 20%.

Comparison

The main differences between the error profiles of subjects in groups (c) and (d) were connected with syntactic and semantic acceptability and self-correction. Group (c) produced generally high proportions of errors which were syntactically and semantically acceptable in sentence contexts and apart from three subjects (44, 34, 18), were often sufficiently aware of their errors, to correct them without help. This was in contrast to group (d) where the frequencies of the above variables including self-correction, were relatively low. In contrast, group (d) depended on the graphophonemic nature of beginnings of words, for their information when reading, which showed up in the proportion of their errors showing beginning graphophonemic proximity.

Proportions of unacceptable syntactic and semantic errors were generally higher in group (d) than in group (c). Interestingly, about half the subjects in group (c) had relatively high proportions of single word insertions among their errors. Most of these were from Tgroup 1.

The mean error rate for group (c) was less than 5% and that for group (d) about 20%.

3. The Third Axis. Groups (e) and (f). (Table 8.3, Figure 8.3)

Group (e) contained 10 and group (f) 7 subjects. Five of the subjects in group (e) and 4 of those in group (f) also appeared in other groups. The main characteristics of both groups (e) and (f) appear to have been a propensity to produce errors which were syntactically or semantically acceptable in the context of a following part of a sentence, and difficulties with reading function words.

Group (e)

1. The people in group (e) made considerable use of graphophonemic information as illustrated by the small proportion of their errors which showed no proximity.
2. Just under 10% of their errors were acceptable in following contexts.
3. Five percent of their errors were for function words.
4. They made no omission errors.
5. The mean error rate for group (e) was a little above 5%.

All four of the subjects also appearing on axis 1 [12,35,39,40] were in group (b), where the emphasis was on successful use of graphophonemic information.

Group (f)

1. Quite a large proportion of the errors made by readers in group (f), almost 30%, were made for function words in the text.

2. A substantial proportion of their errors, about 20%, were syntactically and semantically acceptable in following contexts. This was a smaller proportion than those made for function words and in this way their behaviour differed from that of group (e).
3. About 5% of their errors were omissions.
4. They produced words showing no graphophonemic resemblance to text, more often than the sample of adults as a whole.
5. The mean error rate for group (f) was about 17%.

Two of the subjects in this group who also appeared on axis 1 [13 and 25] were in group (a), one subject [36] was also in group (c)

Comparison

Group (f) produced more omissions among their errors than group (e) and more errors which were syntactically and semantically acceptable in following contexts. The following context errors of group (e) tended to be syntactically rather than semantically acceptable. In this their behaviour was different to that of group (f), relatively large proportions of whose errors were both syntactically and semantically appropriate in following contexts. This behaviour of group (f) would be consistent with the omission of function words many of which perform a linking function. Following context appropriateness can indicate a break in continuity, where the sense of structure of preceding text has been lost. It would appear that prediction was being used here without a reader bearing in mind what had gone before so as to join the two parts of a sentence together in one unit either of grammar or sense. Group (e) made fewer errors with no graphophonemic proximity than group (f). They had in general, higher rates of error per words read than the subjects in group (e) (Figure 8.3.).

One subject (36) in group (f) whose error percentages were anomalous, originated in Tgroup 1, with high comprehension, definition and word reading scores and a low rate of error. The reason for that subject appearing here seems to be a high percentage of errors for function words and errors fitting semantically with following contexts. This subject made higher percentages of errors which had no graphic and phonemic proximity

Fig. 8.1. Mean percentage of error variables related to axis 1 (adults) made by correspondence groups (a) and (b)

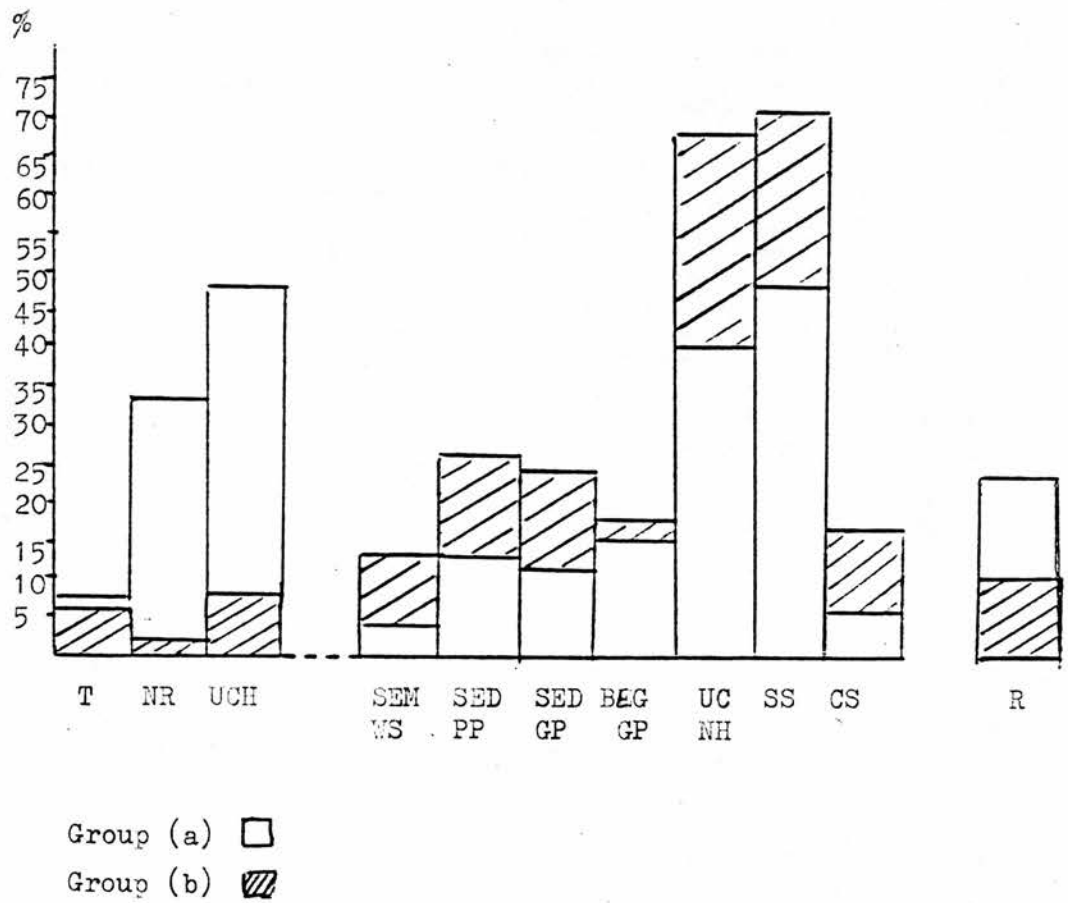


Figure 3.2. Mean percentage of error variables related to axis 2 (adults) made by correspondence groups (c) and (d).

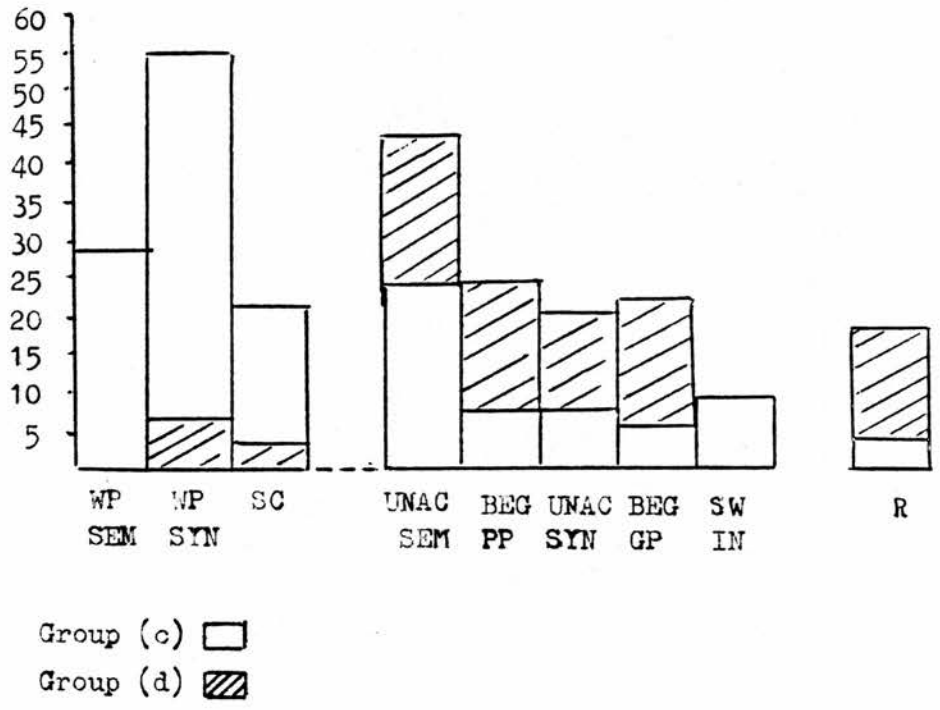
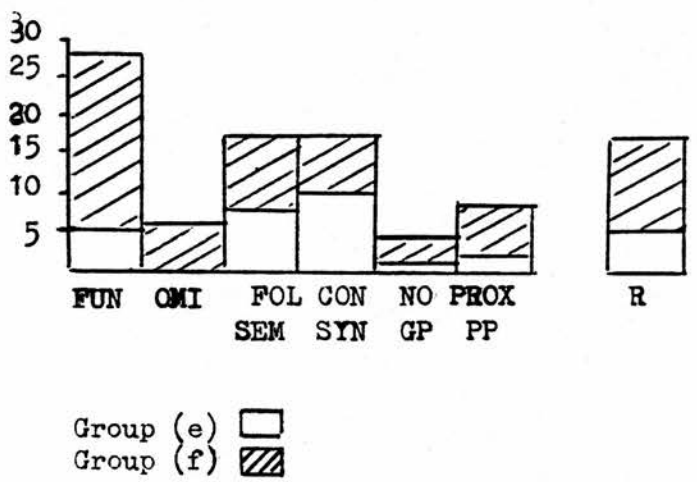


Figure 8.3. Mean percentage of error variables related to axis 3 (adults) made by correspondence (e) and (f).



to text than other subjects in the same group; this again fits in with the nature of function words errors.

Group (e) in general exhibited more consistent behaviour than group (f), those who appeared on more than one axis all being in the same two groups; whereas group (f)'s behaviour appears to have linked with that of more than one other group. The mean error rate for group (e) was about 5% and that of group (f) 17%.

PART II. Children as Grouped by the Correspondence Analysis.

1. The First Axis. Groups (ca) and (cb). (Table 8.4, Figure 8.4)
Group (ca) contained 15 and group (cb) 4 subjects. Five of the subjects in group (ca) also appeared in other groups as did 2 of the subjects in group (cb). Both groups were characterised by a high percentage of their errors being unchanged either by means of self-correction or observer intervention, during the course of reading.

Group (ca)

1. A large proportion of the errors of group (ca) were single substitutions, many of which remained uncorrected as they continued reading.
2. More than 30% of their errors were nonwords.
3. They made a number of errors which were grammatically acceptable in whole passage contexts.
4. They made several errors which fitted with both the meaning and grammar of preceding contexts.
5. More than 10% of their errors were self-corrected. In general their emphasis was on syntax rather than on meaning which is borne out both by thw syntactic acceptability of their errors and the production of nonwords.
6. The error rate of group (ca) was approximately 10%.

Group (cb)

1. There was a relatively high proportion of errors where assistance was given by the observer.

2. There were a number of errors which remained unchanged.
3. The error rate of group (cb) was about 10%.

Comparison

Group (cb) made fewer substitution errors all round than group (ca) and produced less syntactic and semantic acceptability and self-correction. The implication would seem to be that the children in group (cb) were less competent readers than those in group (ca) and less able to cope with the grammar and meaning of the texts.

2. The Second Axis. Groups (cc) and (cd). (Table 8.5, Figure 8.5)

Group (cc) contained 5 and group (cd) 4 subjects. Four of the subjects in group (cc) and 3 of those in group (cd) also appeared in the other groups. Large proportions of both groups' errors were made for nouns in the text.

Group (cc)

1. Concentrated on the graphophonemic beginnings of words.
2. They produced a fairly large number of nonwords among their errors. These tactics imply the insufficient use of visual and aural aspects of text, leading to attempts at unknown words which resulted in errors which were not acceptable as words in English.
3. Four of the five subjects in group (cc) were also connected with axis 1, three of them, 17, 7 and 19 in group (ca); all of these
   (a) produced single substitution errors,
   (b) relied on the beginnings of words for clues to their identity and
   (c) often produced ungrammatical responses.
   They were aware of their errors however, and quite often were able to correct them without help.
4. The error rate of group (cc) was 15%.

Group (cd)

1. Produced errors which were syntactically unacceptable.
2. Made errors which fitted syntactically with prior contexts.
3. They appear to have found difficulty in reading function words.
4. Two of the subjects (9 and 6) appeared also in group (cf) and one (15) in group (ce) where it can be seen that in addition to the behaviour described here, quite a large proportion of their errors were semantically and syntactically unacceptable. They were using grammatical structures as a guide, rather than meaning.
5. The error rate of group (cd) was 10%.

Comparison

The difference between these two groups centres around the use of graphic and phonemic information by the one and the difficulty with syntax of the other.

Group (cc) produced greater proportions of errors whose beginnings were graphophonemically similar to the text, relatively few errors for function words and few syntactically unacceptable errors. Group (cd) on the other hand produced relatively high proportions of both errors for function words and errors which were syntactically unacceptable (Figure 8.5). The levels of errors for function words here are comparable to the adults in axis 3, but there they were associated with omission errors and following context acceptability.

The mean error rate for group (cc) was 15% and that for group (cd) was approximately 10%.

3. The Third Axis. Groups (ce) and (cf). (Table 8.6, Figure 8.6)

Group (ce) contained 3 and group (cf) 5 subjects. Two of the subjects in group (ce) and 4 of those in group (cf) also appeared in other groups.

Group (ce)

1. About 20% of the errors made by group (ce) were syntactically acceptable in whole sentence contexts.

2. About 12% were semantically acceptable in whole sentence contexts.
3. A relatively large proportion of their other errors were acceptable in the context of the text following an error.
4. This group also produced errors which were semantically unacceptable.
5. The mean error rate for group (ce) was approximately 20%.

Group (cf)

1. A very large proportion of this group's errors did not fit the meaning of the text in any way.
2. They produced a number of nonword errors.
3. They made errors which were syntactically acceptable.
4. Many of their errors sounded very close to, if not exactly like, the words in the text.
   The readers here relied heavily upon decoding skills using graphophonemic information.
5. The mean error rate for group (cf) was 8%.

Comparison

Both groups (ce) and (cf) were concentrating on the sounds of words, as illustrated by the proportion of their errors which differed phonemically from the text by only one element. Group (ce) was more successful however at achieving meaningfulness in reponses than group (cf) who produced syntactically but not semantically acceptable errors.

The main difference between the two groups was in the different frequencies of errors appropriate to following contexts. Greater proportions of group (ce)'s errors were of this kind than those of group (cf). The children in group (ce) were paying more attention to meaning than those in group (cf) although they still produced fairly high levels of meaninglessness. Where their errors were appropriate, this tended to be both syntactically and semantically, so it could be said they were making more effective use of both kinds of information than group (cf), whose errors

Figure 8.4. Mean percentage of error variables related to axis 1 (children) made by correspondence groups (ca) and (cb).

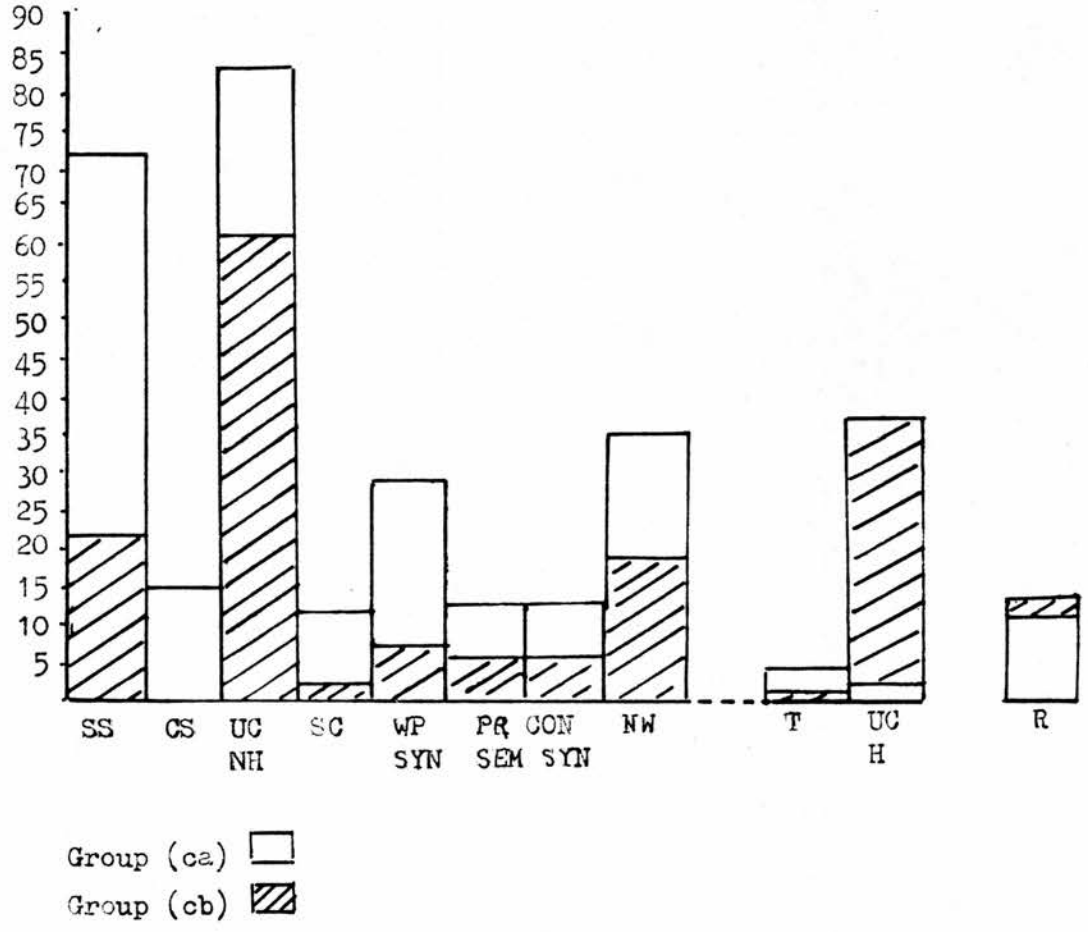


Figure 8.5. Mean percentage of error variables related to axis 2 (children) made by correspondence groups (cc) and (cd).

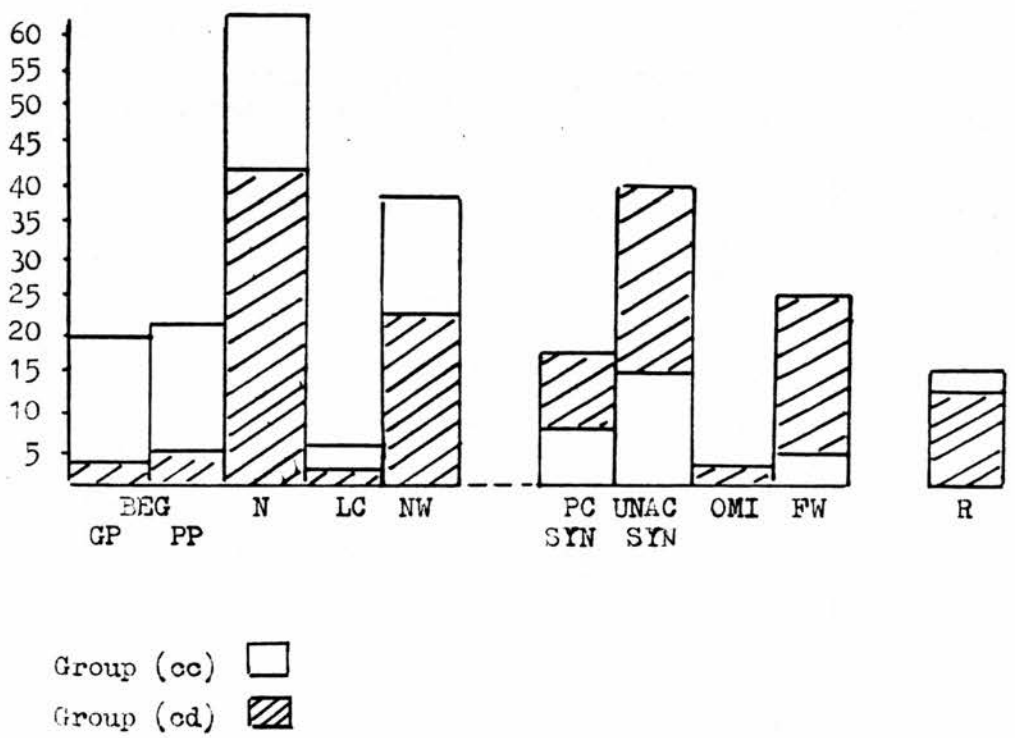
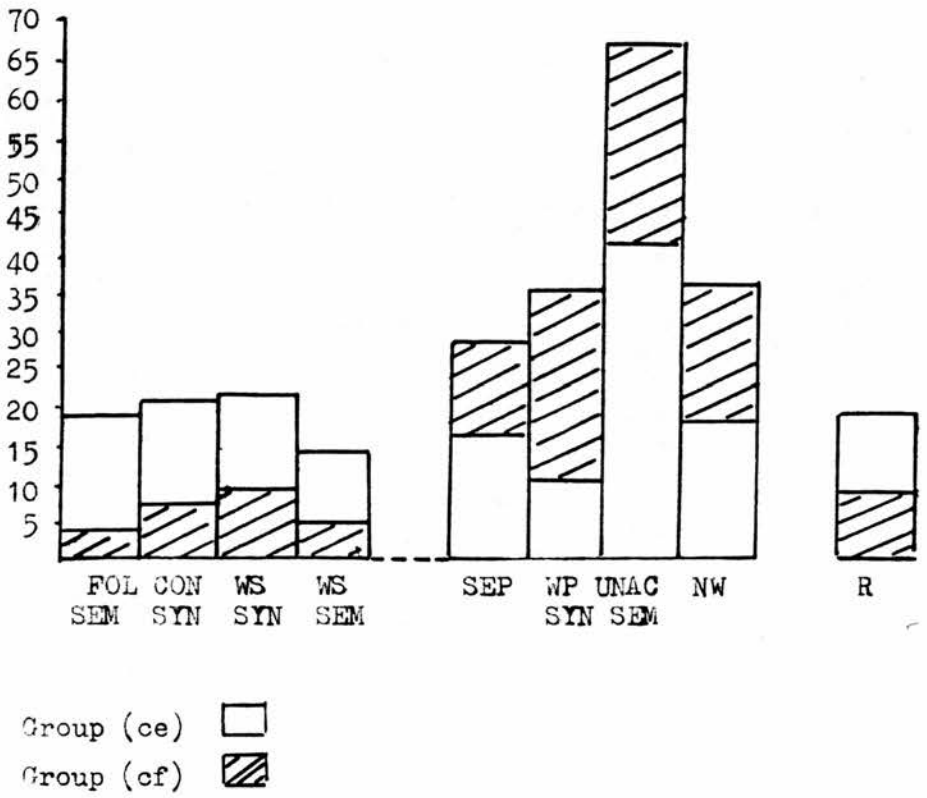


Figure 8.6. Mean percentage of error variables related to axis 3 (children) made by correspondence groups (ce) and (cf).



were even more often meaningless, sounded out inaccurately giving rise to nonwords, yet none-the-less had a tendency to be grammatical.

All but two of the subjects in both groups appeared on other axes; notably, in group (cf) the larger, four out of five subjects appeared elsewhere, two of these (19, 9) on all three axes. Interestingly, only one of the children (15) with high following context errors on axis 3 group (ce) also appeared in axis 2 in group (cd) where there was a high incidence of function words. In the adult sample, the two variables were more closely linked.

There was a substantial difference between the error rates for these two groups. The mean error rate for group (ce) was about 20% and for group (cf) about 8%.

The strategies used by group (cf), heavily dependent upon graphophonemic proximity, enabled them to be more accurate readers than group (ce) in whose case attention to menaing was linked to more frequent error.

PART III. Differences Between the Groupings of the Adults and the Children as Grouped on the First Three Axes of the Correspondence Analysis

There was found to be a basic structural difference between the samples of adults and children, the sample of adults being much more heterogeneous than the children. The children divided into two main groups on the first axis, one of them very large , group (ca), holding 63% of the sample, and one smaller, group (cb), holding about 15% of the sample. The further axes, 2 and 3, show variation which occurred in addition to, rather than separate from, that illustrated in axis 1.

The sample of children did not divide as clearly as the adults into groups which were either meaning or graphophonemically oriented. Rather the bulk of the children produced syntactically acceptable errors more than those which were meaningful. These meaningful errors tended to fit with prior contexts indicating, on the whole, a lack of adequate prediction. Some children produced in addition to this, following context errors and some errors which corresponded to beginnings of words in the text.

Table 8.4 (i) and (ii) shows that almost 80% of the children and their errors were explained by the first axis, in contrast to the adults where less than 50% were explained. More than 60% of the children were in group (ca), their largest group, and only a third of the adults in group (b). There was also considerable overlap in the children's samples on the different axes, more so than the adults. All except two of the subjects on each of children's axes 2 and 3 also appeared on at least one other axis. In the case of the adult samples, although there was some overlap (see Tables 8.1 - 3.) the groups were more distinct (Figure 8.1 a/b). This ties in with evidence already described in Chapters 6 and 7 which points to the adults as having been a less homogenoeus sample than the children.

Group (ca) was notable for a high proportion of substitution errors which were uncorrected but none-the-less received no intervention, and a very small percentage of errors which did receive intervention. Group (cb), the smaller group, in contrast showed relatively high proportions of both kinds of uncorrected error. In this respect the children were like the adults, whose larger and smaller first axis groups showed similar attributes. A difference to be noted is that the incidence of observer intervention in the case of the children's largest group (ca) was even lower than that for the adults in group (b).

Levels of single and compound substitutions in both the larger first axis groups were very similar for the adults and children, although the smaller group of children made far fewer than the smaller group of adults.

Where the other differentiating variables on the adult first axis were related to graphophonemic proximity and semantic whole sentence acceptability, the children were split by self-correction and prior context syntactic and semantic behaviour. The incidence of nonwords varied between the two groups of children too, there being in general greater proportions made by members of the larger group, in company with infrequent assistance and high substitutions (Figures 8.1 and 8.4).

There was no group in the sample of children equivalent to the adult group (c); in general successful, meaning oriented readers.

An extension of the analysis in Section IV goes further to describe the adult group characteristics, excluding people appearing in more than one group, giving a clearer picture of separate group behaviour.

SECTION II. COMPREHENSION AND BAS SCORES, READING LEVEL AND ERROR RATE RELATED TO THE CORRESPONDENCE ANALYSIS GROUPINGS.

1. Adults.

Axis 1. Groups (a) and (b)

The subjects in group (a) had difficulty in reading words in lists and with defining them. None had read further than level 2 passages, four of the six comprehension scores were low too. Five of the seven subjects in this group were from Tgroups 6 and 7.

In group (b) there was a mixture of scores on the accompanying scales and a mixture of reading levels achieved. The subjects in this group were from all Tgroups except Tgroup 1. Almost all the people who were able to define words adequately were able to read level 4 passages. Those who read level 2 passages showed relatively poor definitions scores and also had more difficulty with reading words in lists. It is interesting to note that most subjects found it easier to read words in lists than to define them. Those reading level 4, almost without exception, made higher proportions of errors which were similar in sound and appearance to words in text but for one feature, than errors which resembled beginnings of words only. In this they were different from people who read at lower levels, who in addition to being less successful at word reading and definitions tasks, made relatively high percentages of errors which only resembled beginnings of words in texts.

The results of BAS measurements for the two groups reinforces the differences illustrated by the error profiles. Group (a) had relatively poor word reading and definitions scores and almost all had poor comprehension scores. Error rates were high. In group

(b) error rates varied but were lower in general than those in group (a). Definition scores varied in a similar way, many, not all, in group (b) being poor. Word reading scores in group (b) were almost all medium or good, in keeping with their graphic and phonemic error rates. Comprehension scores varied for both groups, and so did the teaching groups in which they were observed. All except group 1 were represented there.

Axis 2. Groups (c) and (d)

Comprehension, word reading and definitions scores were noticeably higher in group (c) than in all the others. This is the only group where word reading scores were not generally higher than definitions scores. This group contained all the subjects from Tgroup 1.

All the subjects in group (d) came from Tgroups 6 and 7, all read level 2 passages only with poor comprehension. They also had difficulty when attempting to define words.

Axis 3. Groups (e) and (f)

Subjects in both groups (e) and (f) had low definitions scores but medium word reading. Comprehension scores in group (f) were on the low side. The subjects in both these groups were drawn from various of the original teaching groups, except for Tgroup 1.

Group (e) subjects read levels 2 and 3. The subjects in group (f) read mainly passages at level 2. Half the subjects in group (f) were also related to other axes, so that their behaviour here can be viewed in addition to that already described. The error rate in group (e) was higher than that in group (f).

Short term memory scores were mainly medium and varied little from group to group.

2. Children.

As with most of the adults, except group (c) the children's ability to read words in lists outweighed their definitions performance. Most read as far as passage levels 3 and 4, although three of the four subjects in group (cb) read only as far as level

2. All three subjects here performed poorly on the definitions scale. The error rates of the children varied, but were roughly comparable with those of adults in groups (b) and (e), those who relied most on graphophonemic information.

Axis 1. Groups (ca) and (cb)

Comprehension and other scores, including error rate differed little between the two groups ((ca) and (cb)) of children. The average error rates of the two groups were comparable to the larger of the two adult groups (b) on the first axis. The smaller of the two adult groups (a), the one with highest levels of intervention, having a higher error rate.

The adults in group (a) appear in general to have produced lower scores than the children on the first axis although the small size of the smaller groups precludes detailed comparison. The scores of the two larger groups differed in that the adult group (b) showed in general higher comprehension and definition scores than the group of children (ca). Word reading and short term memory scores were comparable, if anything the children having produced more successful word reading scores than the adults. This would be in keeping with their superior decoding abilities.

Axis 2. Groups (cc) and (cd)

Comprehension scores here were average rather than good for both groups. The children in group (cd) performed better on the word reading scale than those in group (cc). There is a possible connection between this and the degree of syntactic unacceptability among their errors, in that they may have been attending to individual words rather than syntactical structures.

Axis 3. Groups (ce) and (cf)

Group (ce) scores for all scales were poor to average while a number of children in group (cf) scored well on the word reading scale. This would relate to the groups' general propensity to

produce errors which were phonemically very like the text, a relatively high degree of gramaticality but little meaningfulness in their reading. Word reading appears to be linked to a word-for-word graphophonemically oriented approach to text, either with or without attention to grammar, but with little emphasis upon prediction or meaningfulness.

SECTION III. TUTORS' OPINIONS OF STUDENTS.

It can be seen from Table 8.7, although the data is incomplete, that tutors' estimates of student potential were often low. Opinions of intelligence were generally low also, although the students in group (c), most having been in Tgroup 1 (Chapter 7) were thought most highly of in this respect. Memories and oral language in general were thought to be fairly poor. Again the opinions which were recorded about subjects in group (c) were slightly more favourable than the others. One or two Tgroup 7 subjects, in group (e), were thought to have good language competence; neither scored in group 3 of the definitions scale. There were occasions when responses were compared to performance on BAS scales where the tutors misjudged students' capabilities, with regard to language competence or memory ability. These errors of judgement were not consistent throughout the sample however, and on the whole given the incomplete nature of this set of data, tutors seem to have been fairly realistic in their assessments of performance. This was in contrast to the tendency to exaggerate the competence of literacy students in the then current literature and in the training sessions discussed in Chapter 2 and Chapter 4. Discussion is felt to be merited however, as to whether lack of capability necessarily means lack of potential. The opinions of the tutors as to the abilities of their students might well have affected their teaching and their assessments of progress made. This will be discussed further in Chapter 9.

SECTION IV. FURTHER ANALYSIS

The groupings produced by the correspondence analysis gave clear indications of the existence of different stragtegies in the reading performance of the adults observed. However only the variables accounting for most of the variance in the behaviour of the sample were shown on each axis. This meant that on axis 1, which accounted for about 50% of the variance in the behaviour of the whole sample, the most significant behaviour seems to have been non-response and observer assistance on the one hand, and the use of graphic and phonemic information on the other. Much of the remaining variance was shown on axis 2 and again on axis 3. This meant that subject performance on variables not appearing on individual axes was not readily apparent. For instance, although it was possible to see on axis 1 that group (a) produced a high proportion of non-response errors, it was not possible to see how they performed with syntax and self-correction, among others.

Another factor which detracted from the potential clarity of the groupings was the appearance of some subjects in more than one group (Figure 8.7). It was decided therefore to take a short further step in removing these subjects and plotting the mean proportion of errors made by the remaining grouped subjects. It was decided also, for clarification, to plot the behaviour of groups on all the variables appearing on the separate axes. The results are shown on Table 8.8.

The resulting group profiles are described below and illustrated in Figure 8.8.

Group Profiles

For ease of identification the six groups have been given names which seem generally to encapsulate the strategies they used, along the lines of Miller and Parlett (1974), where examination takers were grouped according to their examination taking strategies; "cue seekers", "cue conscious" and "cue deaf". An attempt has also been made to describe the groups in a logical order, but because they do not follow a strict continuum of "failure" to "success" the order is not by any means fixed.

Figure 8.7(b). Child groupings and overlaps into other groups. Numbers of people in each group.

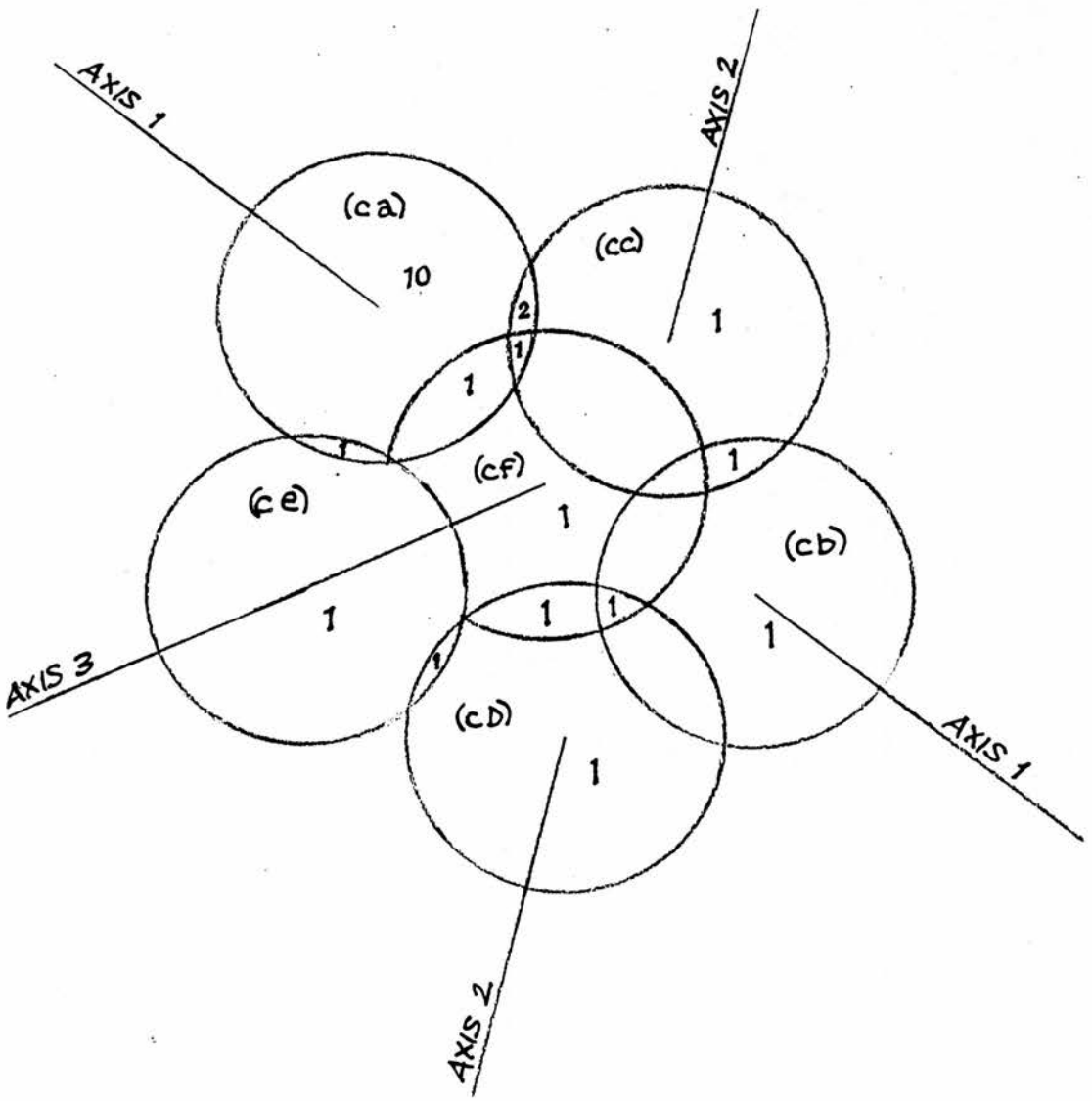


Figure 8.7(a). Adult groupings and overlaps into other groups. Numbers of people in each group.

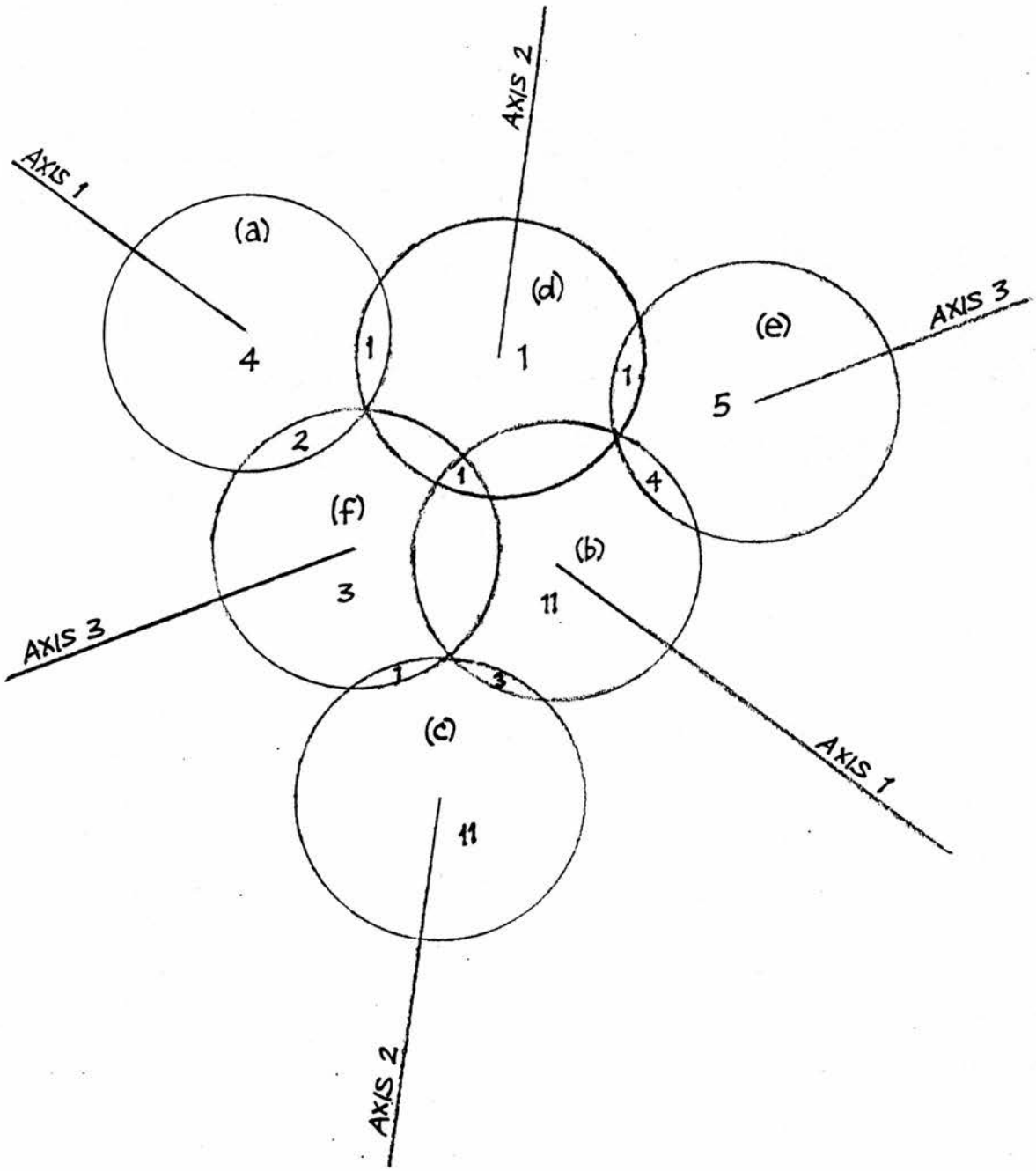
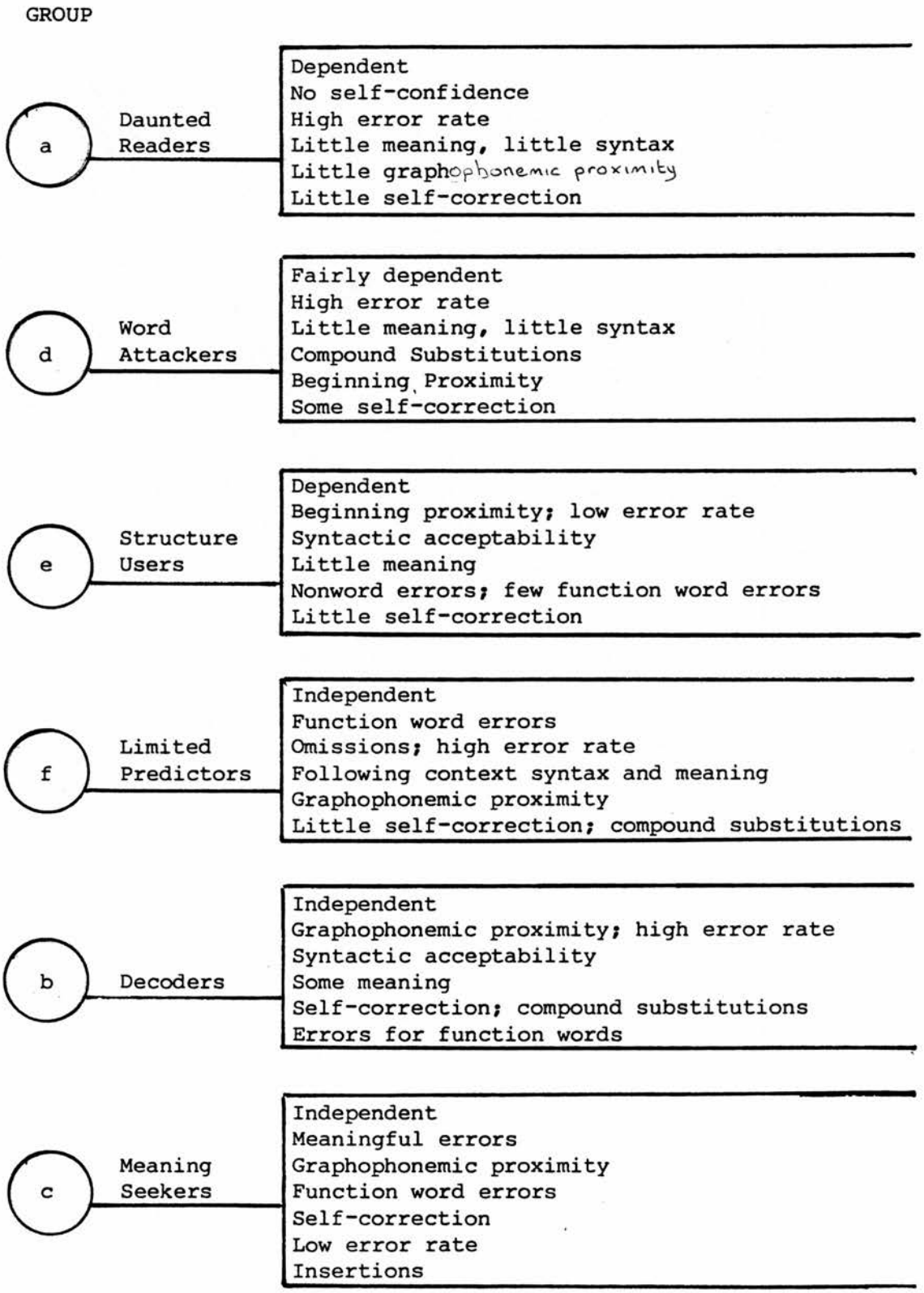


FIGURE 8.8. Characteristics of grouped adult reader's strategies.



1. Daunted Readers.

Generally speaking, those adults least able to cope with the reading task were in group (a), with inadequately developed techniques, poor understanding, lack of self-confidence and dependence upon external assistance. These adults could be termed 'daunted readers'. They had no effective strategy for coping with reading, a difficult task for them. Their scores on the BAS and comprehension measures were poor and their error rates high.

2. Word Attackers.

Group (d) place emphasis upon decoding, were successful in this respect to some degree, emphasising the beginnings of words and being less dependent than group (a), but still producing relatively few errors which were syntactically and, particularly, semantically acceptable. Their scores on the BAS and comprehension measures were poor and similar to those produced by group (a). An appropriate description of them might be 'word attackers'.

3. Structure Users.

Group (e) relied heavily upon the beginnings of words for information, producing a high proportion of errors with beginning only proximity. Unlike group(d) they achieved a high proportion of syntactic acceptability among their errors, which was not matched by meaningfulness. They produced a number of nonword errors and required assistance from the Researcher. An interesting aspect of their behaviour was that they produced fewer errors for function words than any other group. That they were not clearly aware of meaning in the text is illustrated by a low proportion of their errors which were self-corrected. Their definitions, word reading and comprehension scores were low to medium. This group could perhaps be called 'structure users'.

4. Limited Predictors.

Group (f) produced a high proportion of errors for function words in the texts they read and omitted words from the text too. They also produced a fair number of errors which were

acceptable in following contexts, more so semantically than syntactically. Relatively few of their errors were acceptable either syntactically or semantically in whole passage contexts. They seldom corrected their errors and received little help from the Researcher. Their definitions and comprehension scores on the whole were low. Given the limited nature of the syntactic and semantic appropriateness they produced among their errors, together with their following context errors, they could perhaps be termed 'limited predictors'.

5. Decoders.

Group (b) could be called 'decoders', since they placed emphasis upon graphophonemic elemnts of text and were relatively successful at this, more so than either groups (a) or (d). They were independent readers, for the most part, asking for little help, and they produced errors which were often quite close graphophonemically, to a requred response. They made use of syntax but although they indicated an awareness of a need for meaning, more often produced errors which were semantically unacceptable than those in wider contexts. Some achieved relatively high comprehension scores and were able to read texts at quite advanced levels. They showed more confidence in their strategies than groups (a) or (d).

6. Meaning Seekers.

Group (c) could be said to be 'meaning seekers'. They stood apart for the proportions of errors they made which were meaningful in whole passage contexts together with their good Comprehension and other scores. They also frequently made use of self-correction. They placed less emphasis on decoding from the beginnings of words than any of the other groups, their emphasis being upon meaning, although they were capable of using graphophonemic information to good effect.

Having identified the characteristics of the six adult groups, the possibility was considered that certain of the groups might be connected in some way by strategy. An examination of the group

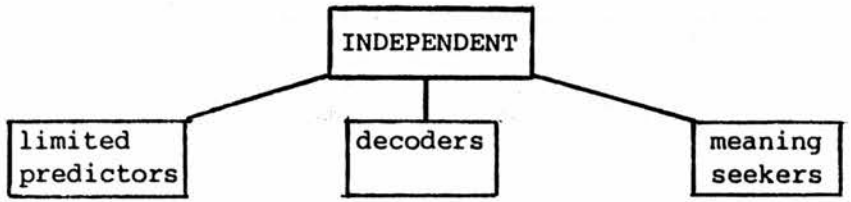
characteristics shows that there is certainly no clear continuum from poor to good, althogh certain strategies, such as meaningful reading appear to be more successful than others when measured against error rate and comprehension scores. The differences between the groups are mainly qualitative in character. Having said that, one or two variables do stand out as setting some groups apart from others. The characteristics which do this most obviously are 'dependent' versus 'independent' reading, based on the amount of observer assistance sought during reading sessions with the Researcher. This was the variable, it will be remembered, which accounted for much of the variance on the first axis of the correspondence analysis. The most dependent groups were (a), (d) and (e), and figure 8.9 shows how the group characteristics divide on this basis. It would be interesting to discover whether, as seems obvious, the dependency or independence result from the strategies used or whether they are part of an attitude to text which has a far reaching effect upon strategy.

It certainly appears that the more 'independent' readers in groups (c), (b) and (f) made effective use of a wider variety of strategies than the dependent readers, although their error rates were not consistently low as a result. Error rate, it would seem was related to the successful use of meaning and structure in reading. The 'meaning seekers' in the more 'independent' set were more successful with a variety of strategies than the 'structure users' in the 'depenedent set. Although both managed to read with relatively little error, the comprehension of the 'meaning seekers' was superior to that of the 'structure users'.

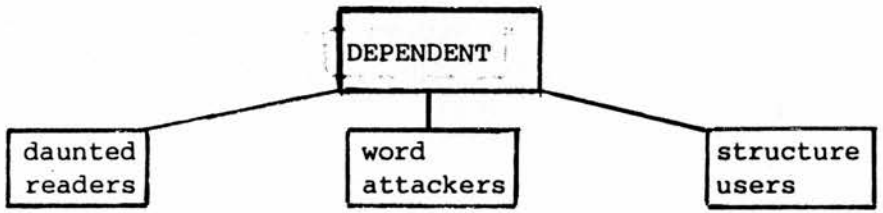
SECTION IV. SUMMARY.

There was a striking contrast between the sample of adults and the sample of children in that the adults divided more evenly into clear groups, while most of the children appeared in the groups related to the first axis and then again in other groups. This is further confirmation of a fundamental difference in the structure of the two samples. Added to this the error variables differentiating the groups were different in character for the two

Figure 8.9. Dependency of grouped adult readers and successful use of strategy.



Error rate	high	high	low
Meaning	med	med	high
Syntax	med	high	high
Graphpro	high	high	high
Self-cor	low	high	high
Function wd.	high	high	high
Nonword	low	low	low



Error rate	high	high	low
Meaning	low	low	low
Syntax	low	low	high
Graphpro	low	low	low
Self-cor	low	med	low
Function wd.	low	med	low
Nonword	low	low	high

samples, a reflection of differences in their error behaviour. None of the adult groups was identical in character to the sample of children. The adult sample divided broadly according to two main sets of criteria:

1. Dependency versus independency -
    a. groups (a), (d) and (e) were dependent,
    b. groups (f), (b) and (c) were independent.
2. Attention to meaning and flexibility -
    a. groups (a), (d) and (e) were limited ib the strategies they used and appeared to pay little attention to meaning,
    b. groups (f), (b) and (c) used a wider variety of strategies and paid mor attention to meaning; group (c) being the most meaning oriented and the most flexible.

Most of the children employed a variety of techniques including attention to aural and visual elements and to prediction. Syntax took precedence over meaning for almost all. The sample did not show thw extremes of good and poor illustrated among the adults but was comparatively unidimensional.

Looking back at the Tgroups in Chapter 7 and their characteristics, some of the various processes taking place for the 'middle' groups have been teased out here. Correspondence group (c) contained most of Tgroup 1 but other Tgroups were fairly evenly represented in the other correspondence groups (even in group (a), which might have been expected to hold all of Tgroup 7), as were reading levels achieved. Strategy or difficulty (where strategy proves to be inadequate) is represented here as having been a vertical rather than a horizontal phenomenon when it came to reading level, and differences between the groups qualitative rather than quantitative with no clear continuum from 'poor' to 'good'.

TABLES 8.1 - 8.7.

CORRESPONDENCE GROUPS:

ERROR ANALYSIS, COMPREHENSION, BRITISH ABILITY SCALES AND TEACHERS' OPINIONS.

TABLE 8.1. Error variables and subjects most closely related to axis 1 of the Correspondence Analysis: frequency of error types made by individual Adults, contrasted with scores on the other measures used.

SUBJECT NUMBER	ERROR FREQUENCY PERCENTAGE										SCORE							
	T	NR	UC H	SEM WS	SED PP	SED GP	BEG GP	UC NH	SS	CS	TGP	COMPREH 2	3	4	BAS STM	WR	DEF	META	R
8.1.(i). Group (a) - Positively Related to the Axis																			
28	0	83	83	0	0	0	0	17	0	0	7				1	1	1		30
4	3	29	40	3	11	11	14	51	60	6	4	1			1	1	1	8	25
25***	11	30	41	4	19	7	22	52	44	7	7	1			2	2	1	7	22
38	14	29	43	7	29	36	0	29	57	0	5	3			2	2	2		11
2	16	20	50	9	5	2	43	36	55	9	7	2			2	1	1	8	34
13***	3	28	28	8	22	22	19	69	47	22	6	1			2	1	1	3	22
8**	0	21	57	0	7	7	14	36	79	0	6	1			2	1	1	12	26
8.1.(ii). Group (b) - Negatively Related to the Axis																			
33	6	0	0	6	28	28	22	67	83	0	6								5
9***	0	5	26	14	33	23	28	44	72	14	5		3		2	2	2		13
53**/***	0	3	8	13	15	21	23	87	46	41	7	1						10	30
41**	4	0	12	23	27	27	31	46	73	15	6			2					5
18**	2	0	0	11	34	34	2	92	63	13	4			3	2	3	2		6
11	0	5	9	14	23	14	36	64	55	36	7	3			2	1	3	12	18
20	5	5	10	14	33	24	21	48	79	7	2			3	2	3	1	13	7
19	3	0	8	6	19	22	17	50	75	17	4			2	2	3	1		7
24	0	0	0	6	27	21	6	97	77	0	6			1	2	3	1		6
23	0	0	17	11	39	44	6	61	100	0	5	1						7	10
29**	0	2	8	14	24	21	11	56	71	16	2			2	3	2	2	13	7
31	1	3	5	13	19	16	13	53	69	16	2			3	2	3	3	17	11
10	1	0	3	17	26	28	8	67	53	36	6			3	2	3	3	17	11
40***	4	0	0	12	31	23	12	81	65	23	4		3		2	2	1		8
35***	7	0	10	13	13	16	42	71	77	16	6	2			2				10
12***	0	3	7	19	32	26	10	65	87	3	6	1			3	2	1		12
21	0	0	18	14	23	23	23	73	82	18	5	1			2	1	1		18
48	7	0	0	7	28	25	9	88	65	18	6			1	2	2	1		10
52	2	3	11	13	21	19	13	78	65	25	4	2				2	1	13	20

** Also related to axis 2
*** Also related to axis 3

Key to Headings:

NR	Non-response	TGP	Teaching group
T	Try	COMPREH	Comprehension
UC H	Uncorrected with intervention	2	Level 2
UC NH	Uncorrected no intervention	3	Level 3
SS	Single substitution	4	Level 4
CS	Compound substitution	STM	Short term memory
BEG GP	Beginning only graphic proximity	WR	Word Reading
SED	Single element different	DEF	Definitions
SEM WS	Semantic whole sentence	META	Metalanguage
		R	Rate

TABLE 8.1 (a). Subjects and error variables most closely related to axis 1 of the correspondence analysis showing amount of relationship to the axis: Adults.

SUBJECTS	RELATIONSHIP TO AXIS (%)	ERROR VARIABLE	RELATIONSHIP TO AXIS (%)
Positively correlated			
28	98.37	T	96.29
4	66.99	NR	96.13
25	54.33	UC H	79.61
38	49.91		
2	37.66		
13	27.61		
8	23.17		
Negatively correlated			
33	21.43	SEM WS	30.10
9	25.93	SED PP	31.85
53	26.99	SED GP	32.60
41	29.99	BEG GP	34.08
18	31.26	UC NH	51.87
11	33.34	SS	96.29
20	34.20		
19	34.71		
24	34.79		
23	35.70		
29	37.05		
31	37.91		
10	40.08		
40	40.62		
35	41.97		
12	42.55		
21	52.04		
48	57.42		
52	68.17		

TABLE 8.2. Error variables and subjects most closely related to axis 2 of the Correspondence Analysis: frequency of error types made by individual Adults, contrasted with the scores on the other measures used.

SUBJECT NUMBER	ERROR FREQUENCY PERCENTAGE								SCORE								
	WP SEM	WP SYN	SC	UNAC SEM	BEG PP	UNAC SYN	BEG GP	SW IN	TGP	COMPREH 2	3	4	BAS STM	WR	DEF	META	R
8.2.(i). Group (c) - Positively Related to the Axis																	
14	35	70	35	17	0	0	0	30	1			3	2	3	3	18	4
32	25	50	44	19	6	0	0	13	2			3	3	3	3	17	3
51	75	75	24	0	13	0	13	0	1			3	2	3	3	17	3
46	18	38	15	24	6	18	3	12	4			3	1	3	2		6
36***	21	50	17	8	0	8	8	8	1			3	2	3	3	15	6
37	50	63	38	25	0	13	0	25	1			2	2	3	3		3
27	27	53	17	7	17	0	13	3	6			3	2	3	3	18	5
44	31	50	0	31	0	8	0	0	4			1		3	1		3
34	20	100	0	60	0	0	0	20	1								2
18*	18	24	7	32	5	18	2	8	4			3	2	3	2		6
41*	15	50	27	27	23	12	31	0	6			2					5
54	33	50	33	33	17	17	0	0	2			3	3	3	2	5	2
29	8	41	29	33	13	10	11	3	2			2	3	2	2	13	7
8.2.(ii). Group (d) - Negatively Related to the Axis																	
53*/***	0	0	3	46	21	39	23	0	7	1						10	30
17	0	7	13	42	20	18	20	0	6	1			2	2	1	11	24
8*	0	7	0	50	14	21	14	0	6	1			2	1	1	12	26
39***	0	13	0	38	44	6	31	0	6		2		1	2	1		12

* Also related to axis 1
*** Also related to axis 2

Key to headings:

WP SEM	Semantic whole passage
WP SYN	Syntactic whole passage
SC	Self-correction
BEG GP	Beginning graphic proximity
BEG PP	Beginning phonemic proximity
UNACC SYN	Syntactically unacceptable
UNACC SEM	Semantically unacceptable
SW IN	Single word insertion
TGP	Teaching group
COMPREH	Comprehension
2	Level 2
3	Level 3
4	Level 4
STM	Short term memory
WR	Word reading
DEF	Definitions
META	Metalanguage
R	Error rate

TABLE 8.2 (a). Subjects and error variables most closely related to axis 2 of the correspondence analysis showing amount of relationship to the axis: Adults.

SUBJECTS	RELATIONSHIP TO AXIS (%)	ERROR VARIABLE	RELATIONSHIP TO AXIS (%)
Positively correlated			
14	61.41	WP SEM	71.84
51	57.17	WP SYN	49.87
46	56.71	SC	35.56
36	52.42		
37	49.24		
27	38.19		
44	29.42		
34	29.07		
18	28.06		
41	27.43		
54	25.06		
29	24.11		
Negatively correlated			
53	20.65	UNAC SEM	27.97
17	24.64	BEG PP	28.27
8	28.03	UNAC SYN	32.11
39	29.54	BEG GP	34.06

TABLE 8.3. Error variables and subjects most closely related to axis 3 of the Correspondence Analysis: frequency of error types made by individual Adults, contrasted with the scores on the other measures used.

SUBJECT NUMBER	ERROR FREQUENCY PERCENTAGE						SCORE								
			FOL CON		NO PROX		COMPREH				BAS				
	FUN	OMI	SEM	SYN	GP	PP	TGP	2	3	4	STM	WR	DEF	META	R
8.3 (i). Group (e) - Positively Related to the Axis															
22	4	2	8	8	0	0	7	2			2	2	1	10	19
16	14	0	9	6	0	0	6	1						3	14
7	3	0	3	10	3	7	5		3		1	2	1		9
50	0	0	17	17	0	0	2			1	2	3	2		2
12*	3	0	7	11	0	0	6	1			3	2	1		12
35*	10	0	3	13	0	0	6	2			2				10
6	6	1	9	14	1	2	7		2		2	2	2	9	14
39**	0	0	6	6	0	0	6	2			1	2	1		12
40*	0	0	8	0	0	0	4		3		2	2	1		8
9*	7	0	7	12	2	12	5		3		2	2	2		13
8.3 (ii). Group (f) - Negatively Related to the Axis															
3	25	6	25	25	0	6	7	1			2	2	1		13
13*	17	0	9	11	3	11	6	1			2	1	1	3	22
36**	42	4	13	8	13	17	1			3	2	3	3	15	6
25*	22	0	15	15	11	4	7	1			2	2	1	7	22
53**/*	28	3	23	26	3	18	7	1						10	30
1	41	11	22	19	0	4	2	2			1	2	1	15	11
5	21	16	19	25	7	6	4		3		2	2	1		21

* Also related to axis 1
** Also related to axis 2

Key to headings:

FUN	Function word	TGP	Teaching group
OMI	Omission	COMPREH	Comprehension
FOL CON	Following context acceptability	2	Level 2
SEM	Semantic acceptability	3	Level 3
SYN	Syntactic acceptability	4	Level 4
NO PROX	No proximity	STM	Short term memory
GP	Graphic	WR	Word reading
PP	Phonemic	DEF	Definitions
		META	Metalanguage
		R	Error rate

TABLE 8.3 (a). Subjects and error variables most closely related to axis 3 of the correspondence analysis showing amount of relationship to the axis: Adults.

SUBJECTS	RELATIONSHIP TO AXIS (%)	ERROR VARIABLE	RELATIONSHIP TO AXIS (%)
Positively correlated			
22	41.23	FUN	51.43
16	31.83	OMI	40.44
7	26.33	FOL CON SEM	37.43
50	24.21	FOL CON SYN	27.61
12	19.52	NO PROX GP	22.72
35	19.45	NO PROX PP	22.65
6	18.17		
39	17.99		
40	17.93		
9	16.36		
Negatively correlated			
3	12.02		
13	13.18		
36	14.44		
25	15.57		
53	33.04		
1	45.03		
5	49.78		

TABLE 8.4. Error variables and subjects most closely related to axis 1 of the Correspondence Analysis: frequency of error types made by individual children, contrasted with scores on the other measures used.

SUBJECT NUMBER	ERROR FREQUENCY PERCENTAGE										SCORE							
			UC		WP	PR	CON		UC		COMPREH			BAS				
	SS	CS	NH	SC	SYN	SEM	SYN	T	H	NW	2	3	4	STM	WR	DEF	META	R
8.4 (i). Group (ca) - Positively Related to the Axis																		
14	69	15	83	15	33	15	12	2	2	25			2	2	3	2	12	6
2	82	5	87	10	44	13	21	3	0	39			2	2	3	1	6	4
11	69	7	93	5	39	18	18	8	0	44			1	3	3	2		8
13***	88	5	75	15	40	15	23	5	5	48		2		3	3	2	9	7
5	74	13	75	18	29	16	12	3	3	24			1	2	3	2	12	9
24***	68	22	81	12	18	16	16	2	1	25		2		1	2	2	11	15
20	59	29	93	6	8	13	12	3	0	28			1	3	2	1	9	13
18	63	20	95	5	28	23	10	3	0	10		1		2	2	2	10	12
4	79	2	76	21	24	12	9	7	0	41			3	3	3	2	12	4
22	73	18	92	4	14	10	13	2	1	43		1		2	3	1	10	14
21	71	18	93	4	18	14	14	0	0	57			2	2	3	1		5
19**/***	65	27	70	19	65	5	0	5	8	51		2		1	3	2	14	12
17**	78	7	72	15	39	11	3	6	11	52		2		2	2	2	9	8
7**	64	19	64	17	17	4	14	3	6	14		2		2	2	3	12	14
8	79	14	90	10	21	7	17	0	0	28	2			1	3	2	9	12
8.4 (ii). Group (cb) - Negatively Related to the Axis																		
1	14	0	82	0	18	14	9	5	18	5	2			2	2	1		9
9**/***	10	0	40	5	10	10	15	5	55	25		1		3	3	3		7
23	31	0	65	4	0	0	0	0	31	12	1			2	2	1	12	12
3**	32	0	58	0	0	0	0	5	42	32	1			2	1	1	7	22

** Also related to axis 2
*** Also related to axis 3

Key to headings:

UC H	Uncorrected with intervention	NW	Nonword
UC NH	Uncorrected no intervention	COMPREH	Comprehension
T	Try	2	Level 2
SS	Single substitution	3	Level 3
CS	Compound substitution	4	Level 4
WP SYN	Whole passage syntactic acceptability	STM	Short term memory
		WR	Word reading
PR CON	Prior context	DEF	Definitions
SEM	Semantic acceptability	META	Metalanguage
SYN	Syntactic acceptability	R	Error rate

TABLE 8.4 (a). Subjects and error variables most closely related to axis 1 of the correspondence analysis showing amount of relationship to the axis: Children

SUBJECTS	RELATIONSHIP TO AXIS (%)	ERROR VARIABLE	RELATIONSHIP TO AXIS (%)
Positively correlated			
14	54.25	SS	74.80
2	46.77	UNCOR NH	47.55
11	45.58	SC	37.90
13	44.58	WP SYN	36.34
5	43.50	PR CON SEM	34.12
24	37.56	PR CON SYN	30.74
20	33.46		
18	33.16		
4	26.18		
22	24.92		
21	23.65		
19	18.86		
17	16.03		
7	14.71		
8	13.39		
Negatively correlated			
1	15.54	T	80.49
9	41.72	UNCOR H	87.70
23	67.38		
3	85.25		

TABLE 8.5. Error variables and subjects most closely related to axis 2 of the Correspondence Analysis: frequency of error types made by individual children, contrasted with scores on the other measures used.

SUBJECT NUMBER	ERROR FREQUENCY PERCENTAGE									SCORE							
	BEG				PC	UNAC		PC		COMPREH			BAS				
	GP	PP	N	LC	SYN	SYN	OMI	FW	NW	2	3	4	STM	WR	DEF	META	R
8.5 (i). Group (cc) - Positively Related to the Axis																	
17*	13	13	52	6	11	7	2	4	52		2		2	2	2	9	8
12	20	18	52	1	9	23	0	7	34		2		2	2	2	12	16
7*	25	28	61	11	14	11	0	6	14		2		2	2	3	14	14
19*/***	11	19	60	5	0	14	0	5	51		2		1	3	2	14	12
3*	26	26	74	5	0	21	0	0	32	1			2	1	1	7	22
8.5 (ii). Group (cd) - Negatively Related to the Axis																	
8	3	0	45	0	17	24	3	24	28	2			1	3	2	9	12
9*/***	0	5	50	0	15	45	0	20	25			1	3	3	2		7
15***	7	7	41	0	28	31	3	24	7	2			2	2	2	4	22
6***	2	2	28	5	7	52	2	32	28			2	2	3	2	4	7

* Also related to axis 1
*** Also related to axis 3

Key to headings:

OMI	Omission		
FW	Function word	COMPREH	Comprehension
BEG GP	Beginning graphic proximity	2	Level 2
BEG PP	Beginning phonemic proximity	3	Level 3
UNAC SYN	Syntactically unacceptable	4	Level 4
LC	Limited context acceptability	STM	Short term memory
N	Noun	WR	Word reading
PC SYN	Prior context syntactic acceptability	DEF	Definitions
		META	Metalanguage
NW	Nonword	R	Error rate

TABLE 8.5 (a). Subjects and error variables most closely related to axis 2 of the correspondence analysis showing amount of relationship to the axis: Children

SUBJECTS	RELATIONSHIP TO AXIS (%)	ERROR VARIABLE	RELATIONSHIP TO AXIS (%)
Positively correlated			
17	39.66	BEG GP	54.43
12	27.62	BEG PP	50.12
7	26.10	N	41.99
19	25.85	LC	41.07
3	12.29		
Negatively correlated			
8	10.61	PC SYN	29.53
9	28.81	UNAC SYN	52.12
15	55.73	OMI	68.88
6	57.50	FW	75.22

TABLE 8.6. Error variables and subjects most closely related to axis 3 of the Correspondence Analysis: frequency of error types made by individual children, contrasted with scores on the other measures used.

SUBJECT NUMBER	ERROR FREQUENCY PERCENTAGE								SCORE							
	FOL CON		WS			WP	UNAC		COMPREH			BAS				
	SEM	SYN	SYN	SEM	SEP	SYN	SEM	NW	2	3	4	STM	WR	DEF	META	R
8.6 (i). Group (ce) - Positively Related to the Axis																
10	26	26	28	12	12	4	37	22	2			1	1	2	13	20
15**	14	14	21	21	10	7	38	7	2			2	2	2	8	22
24*	17	24	17	8	2	18	49	25		2		1	2	2	11	15
8.6 (ii). Group (cf) - Negatively Related to the Axis																
6**	3	7	3	2	23	25	77	28			2	2	3	2	4	7
9*/**	5	15	0	0	25	10	70	25			1	3	3	2		7
16	5	9	19	11	25	37	53	28			1	2	2	2	10	10
13*	5	5	13	5	40	40	68	48		2		3	3	2	9	7
19*/**	0	0	8	5	27	65	68	51		2		1	3	2	14	12

* Also related to axis 1
** Also related to axis 2

Key to headings:

FOL CON	Following context	NW	Nonword
SEM	Semantic acceptability	COMPREH	Comprehension
SYN	Syntactic acceptability	2	Level 2
UNAC SEM	Semantically unacceptable	3	Level 3
WP SYN	Syntactically acceptable in whole passage context	4	Level 4
		STM	Short term memory
WS SYN	Syntactically acceptable in whole sentence context	WR	Word reading
		DEF	Definitions
SEM	Semantically acceptable	META	Metalanguage
SEP	Single element different phonemic proximity	R	Error rate

TABLE 8.6 (a). Subjects and error variables most closely related to axis 3 of the correspondence analysis showing amount of relationship to the axis: Children

SUBJECTS	RELATIONSHIP TO AXIS (%)	ERROR VARIABLE	RELATIONSHIP TO AXIS (%)
Positively correlated			
10	68.55	FOL CON SEM	62.13
15	20.91	FOL CON SYN	40.69
24	13.91	WS SYN	33.91
		WS SEM	29.35
Negatively correlated			
6	15.17	SEP	31.07
9	18.54	WP SYN	40.85
13	24.86	UNAC SEM	53.42
19	36.47		

TABLE 8.7. Teachers' opinions of students' attributes.

Subject Number	Future Progess	Intelligence	Memory	Oral Language	Tgroup
A. Group (a).					
28	1	1	0	1	7
4		0	1		4
25	0	0	1		4
2	0	0	0	1	7
13	1	0	1	0	6
8	1	0	0	1	6
Missing Subjects: 38					
B. Group (b).					
52	1	0	1	1	4
21	0				5
12	1	0	0	0	6
35	0	0			6
40			0		4
10	0	0	1	0	6
31	2	2	1	1	2
24	0	0	0	0	6
20		0			2
9			0		5
33	0				6

Missing subjects: 48, 29, 23, 19, 11, 18, 41, 53.

Key: 0 = Poor 1 = Average 2 = Good

Table 8.7. continued.

Subject Number	Future Progess	Intelligence	Memory	Oral Language	Tgroup
C. Group (c).					
32	2	2	2	2	2
51		2			1
46	2	2	2	1	4
36		1			1
37		2			1
27	1	1	2	2	6
44		0		0	4
54		2			2

Missing subjects: 14, 34, 18, 41, 29.

D. Group (d).					
39	0	0	1	0	6
8	1	0	0	1	6
17	0	1	1	2	6

Missing subjects: 53.

Key 0 = Poor 1 = Average 2 = Good

Table 8.7. continued.

Subject Number	Future Progess	Intelligence	Memory	Oral Language	Tgroup
E. Group (e).					
22	2	1	1	2	7
35	0	0			6
6	1	1	1	2	7
39	0	0	1	0	6
40			0		4
9			0		5
Missing subjects: 16, 7, 50, 12.					
F. Group (f).					
5	0	0	1	1	4
25	0	0	0	0	7
36		1			1
13	1	0	1	0	6
3	0	1	2	1	7
Missing subjects: 53.					

Key: 0 = Poor 1 = Average 2 = Good

TABLE 8.8. Mean proportion of errors made by correspondence groups after removing overlappers.

CORRESPONDENCE GROUP	ERROR FREQUENCY (PERCENTAGE)																					
	NR	UC H	UC NH	NP GP	NP PP	BEG GP	BEG PP	SED GP	SED PP	UNAC SYN	UNAC SEM	FC SYN	FC SEM	WS SYN	WS SEM	WP SYN	WP SEM	OM	INS	FUN	NW	SC	CS
A	40	54	33	2	4	14	17	12	11	17	17	3	4	7	5	17	5	0	3	7	5	7	4
D	7	28	50	3	5	20	20	23	23	18	42	22	10	10	10	0	0	0	0	13	12	13	20
F	6	9	82	5	7	11	9	20	30	17	20	17	24	19	13	13	2	14	4	29	6	9	14
E	9	29	55	1	2	22	23	14	17	9	27	11	9	14	10	34	7	1	1	5	22	6	7
B	1	7	65	4	7	16	18	24	26	14	35	19	15	20	11	25	6	1	2	15	17	17	15
C	0	5	72	9	9	3	7	32	32	6	24	5	9	14	15	61	35	3	11	23	12	23	11

Key to Headings:

NR	Non-response
UC H	Uncorrected with intervention
UC NH	Uncorrected no intervention
NP GP	No Graphic Proximity
NP PP	No phonemic Proximity
BEG GP	Beginning only graphic proximity
BEG PP	Beginning only phonemic proximity
SED GP	Single element different graphic proximity
SED PP	Single element different phonemic proximity
UNAC SYN	Syntactically unacceptable
UNAC SEM	Semantically unacceptable
FC SYN	Following context syntactically acceptable
FC SEM	Following context semantically acceptable
WS SYN	Syntactic whole sentence
WS SEM	Semantic whole sentence
WP SYN	Syntactic whole passage
WP SEM	Semantic whole passage
OM	Omission
INS	Insertion
FUN	Function word
NW	Nonword
SC	Self-correction
CS	Compound substitution

CHAPTER 9. METHODOLOGICAL REFLECTIONS.

SECTION I. THE GATHERING AND PRESENTATION OF THE DATA.

This was a study carried out in interesting social conditions. A formal psychological attitude from the past might well have held that the circumstances under which these data were collected were less than ideal and some variables too unstable to support scientific reportage of findings.

An available rather than selected sample of adults was used coupled with a flexible inteview method. The Researcher was aware at the time of potential criticisms but persisted in the knowledge that had the prevailing conditions not been tolerated there would have been no data, studies of reading acquisition having previously been confined to samples of young children, for example studies by Beimiller (1970); Weber (1970); Clay (1969) and the many by Goodman. At the time this data was collected the Literacy Scheme organisers were very protective of the students and reluctant to allow observation or testing of any kind which might in some way infringe the individual rights of students or interrupt their learning in some way.

This attitude appears also to have been experienced by Jones and Charnley (1978) in their study of the 'Impact of Adult Literacy Provision' where they found that "confidentiality was probably the most serious constraint (on research). The stigma that was widely believed to attach to illiteracy induced everyone, especially in the early stages of the campaign to assert the absolute confidentiality of the process by which a student was brought into the scheme..." and that tuition rested on what was felt to be a "fragile relationship". In a further study Charnley and Jones (1979) they said "an undue emphasis was placed on confidentiality....Therefore statistical sampling was not a possible course of action".

Happily lately, more attention is being given to naturalistic environments as potential sources of reliable and useful data. Adult literacy is one area where formal observation, were it to be allowed, might well be counterproductive, with responses being influenced unduly by method. However, when the observations in this study were planned and while they were being carried out, although there had been criticism of the controlled methodology regularly used in reading research (Farr and Weintraub, 1975; Boraks, 1978), so little close observation had been reported in the area of adult illiteracy the activities had an exploratory flavour in every sense.

The findings of Charnley and Jones (1979) are again of interest here, since their contemporaneous study published after this research was begun, reflected many of the sampling difficulties encountered here. On the topic of data collection and 'testing' their report that when interviewed: "students viewed overtly-structured questions as a form of testing which reminded them of failure at school and roused in them strong feelings of hostility", so that "the approach had to be qualitative and imaginative" lends extra credibility to the methods adopted in this study.

The few recent comparable studies in this area (Boraks, 1978; Boraks and Schumacher, 1981) have used more specifically ethnographic methods of data collection, taking their cue from Guba (1980) and in their reports, the use of such methods has been justified at some length. These were not in existence at the time of this study so that the Researcher drew upon naturalistic enquiry and participant observation for her methods. This having been said and such informal methods having been used, there was a sense of dilemma when choosing which way best to report the findings. There had been collected a substantial body of coded data about subjects' specific reactions to text when reading orally and also about competence in a number of other areas related to reading such as comprehension, word reading and definitions skills and knowledge of metalanguage. Such data in an area where little existed were felt to be sufficiently valuable to

report in some detail, quite aside from the context in which it was collected, with perhaps a brief mention of the background conditions.

There was however, alongside this data a body of records about the collection of the data and the interactions between the Researcher and subjects of different kinds which was felt to be sociologically and educationally interesting in its own right. The difficulty lay in juxtaposing this with the more readily quantifiable data in a research report with clearly defined limitations, such as this is.

The reason for emphasising the quantifiable data , simply using the sociological material for contextualisation, was its potential value in terms of information which could be of practical use in testing and pedagogical situations. The limitations of size and format imposed by the thesis too, influenced the decision. It would not be possible however, to discuss the data realistically or to draw conclusions from it without acknowledging the circumstances of its collection, so that when conclusions are reached they are influenced by the experiences of the research.

The Researcher's view is that the picture given by the data against the background of its surroundings enhances the knowledge gained, not least in that future pedagogical plans based on these results have to be designed with reference to learning context if they are to be any use. A knowledge of setting is essential here for future progress.

As to the decision of what data to collect, the field was wide open. Hints were taken from previous studies done with children about useful areas to observe (Clay, 1968; 1969; Weber, 1970; Beimiller, 1970; Reid, 1966). The recording and analysis of oral reading errors, although known to be a laborious process was chosen as a worthwhile way of getting really close to readers at work. It was chosen in preference to cloze because there was no written element involved and also because more than prediction techniques were of interest; graphic and phonemic information was wanted to set beside syntactic and semantic. Error analysis was considered to be a more comprehensive procedure. Various other measures were used as a way of adding further dimensions (see chapter 4).

SECTION II. THE RECORDING OF ORAL READING ERRORS: EVALUATION OF METHODS CHOSEN.

The recording and analysis of reading errors was chosen as the most effective available method of gathering and intepreting data about people with reading difficulties. It had the advantages of providing information about a range of people from those with very limited reading ability to those who, superficially at least, could process text efficiently. There were people in the sample observed for whom reading was extremely laborious and painstaking; this method, it was felt, could provide insights into the strategies used by them as well as by those who were more adept, although it is recognised that there comes a point in oral reading efficiency where the number of reading errors is so small as to reduce the method's usefulness. At this stage probably, tests of comprehension, cloze procedure, or textual manipulation would provide more illuminative information about strategy.

The system of recording and analysis of errors in this study differs from those found in much other research in some important respects:

1. The texts used were not pedagogical and neither were they purpose written, so that there was no control on the language being read.
2. The error categories which were chosen were based both on background research and theory, and on behaviour recorded by the Researcher in the transcripts of texts read. Although the error analysis was based mainly upon a system devised by Goodman (1973), the system was adapted for simplicity and supplementary error variables were introduced from other sources. A full description and explanation of the categories used appears in Chapter 4.

This section attempts to describe in retrospect the effectiveness of the methods used in terms of the information gained and its relevance to the final results of the study.

1. Chosen Texts

The texts which were chosen in this study meant that certain fundamental differences existed from the start between the source

of this data and the methods used to record and analyse it, and most of that collected elsewhere.

The texts used in most other studies of reading errors have been pedagogical in nature. Here, although selected from a common source, the texts were variable in style and graded only by readability formula. They were specifically selected for not being pedagogically designed since the observations were to be based on the ability of adult literacy students to deal with genuine printed discourse and its variations. Reid, in a relatively recent paper (1983) discussed the importance of coping with "new and unexpected content" as a main objective in learning to read. She expanded her argument with: "while it is true that expectations support our reading, it is especially true that unless a book can surprise us or tell us things we did not previously know, there is little point in our reading it". This quotation is apposite here since it was with such a thought in mind that non-pedagogical texts were chosen.

2. Categorisation of errors

Changes made to Goodman's system and the reasons for them have been discussed at length in Chapter 4.

In retrospect the simplification and selection from Goodman's system was felt to have been justified; even the categories which were used, a much reduced version, proved laborious of analysis and sometimes decisions about variable classification were difficult.

All the main variables chosen from Goodman were in the end found to be useful however and the addition of the Researcher's own 'general error types' proved to be an invaluable guide to the strategies being used.

Syntactic and semantic acceptability had been recorded by the Researcher in previous research and were used here with additional refinements such as 'acceptability in limited contexts' and 'acceptability in prior and folowing contexts but not a whole sentence'. In the end errors which were acceptable either in sentence, whole passage or following contexts or those which were completely unacceptable proved to be the best indicators of differences in strategy. It may be that the information gathered about less frequent behaviour would have been more at home in an

in-depth research study including case studies of individuals rather than in research which sought to identify trends in a whole sample.

Although the Researcher altered Goodman's system she accepted his assumption that semantic acceptability could occur only if a response first possessed syntactic acceptability. Had the focus here been more semantic in character, it would have been profitable it is thought, to explore errors which although they were syntactically unacceptable showed some indication of the extraction of meaning, either by association of ideas or otherwise (Mulholland, 1986).

However, so little information existed about the reading stragtegies of such adults it was decided to stick to a simple syntactic/sematic identification system, in order to leave room for graphophonemic data as well.

Of the error types in the general error category, the most useful in the light of the results were single substitutions, insertions and omissions, compound errors, and non-responses. All appeared in the groups finally identified by the correspondence analysis. Self-correction was another variable not used as such by Goodman but described in the past in detail by Clay (1969), in particular.

It is possible on reflection that the categories used in the analysis could have been simplified even more than they were, perhaps for instance limited context and phrase and clause errors could have been grouped together as could different kinds of repeated errors. The justification for using them was the exploratory nature of the research, the Researcher's desire to explain as many areas as possible within certain limitations, and the existence of such phenomena in the transcripts when data were coded. Most of the decisions about the analysis appear to have been justified in the light of the groupings which have emerged although there is still room for further and more detailed exploration of the data.

Amid discussions about the effective analysis of errors, criticisms have been made of the categorisations of substitutions, omissions and insertions and such descriptive terms on the grounds

that they interpret 'error' as meaning 'fault'. These criticisms appear to be particularly valid where errors have been used as 'indicators' of inadequate learning', in old style oral reading tests (Donald 1980).

However, here in this study, under the heading 'general error type', descriptors such as these were used alongside Goodman's (1973) more linguistic categories to provide a simple added dimension through which the reading activity of the subjects here could be compared with what has been found in the past using various systems of analysis, among them those of Clay(1968), Weber (1970a) and Beimiller (1970).

Thus, when the data were coded, the variables chosen were finally based upon what was apparent about the readers' behaviour in the transcripts. For example, insertions, omissions, non-responses and substitutions appeared as obvious error types, in addition to and apart from the linguistic and graphophonemic nature of the errors. Self-correction was included too because of its prominence in other research on reading errors (Clay, 1969). Intervention was included because of the frequency of its occurrence; and because it was a way of altering an initial response, it was coded together with self-correction.

Most of the error categories used were justified by the results obtained although it is now felt that perhaps the plan of subcategorisation was rather ambitious in the light of resources available.

a. General Error Types

In retrospect the 'general error type' variables could have been limited to single and compound substitutions, insertions, omissions and non-responses. Since the system had not been used before, the evaluation of its effectiveness took place, of necessity, during and after the analysis of the data.

Single and Compound Errors. The difference between single and compound errors was revealing in that the readers who produced most compound errors were those who experienced some of the greatest difficulty with reading. Substitutions which formed

part of compound errors have received most attention because they occurred more frequently than other compound error types; which, none the less, provided valuable additional information about compound errors in general.

Substitution. Studies of reading errors have almost without exception found the main 'unit of error' to be a 'substitution' so that substitution errors were recorded as a basic unit of comparison with other work should this be necessary. Definitions of substitutions have varied, and two basic ones were chosen here, that of a single word being pronounced in place of one in the text and also, compound substitution, where the error was part of a larger unit. Here, about 60% of all errors were single substitutions and 15% compound substitutions for both samples observed. When the proportions of the two kinds of substitutions are added together, they compare closely with the findings of others. Between 52 and 79% of errors were substitutions in a study by Goodman (1965) and approximately 80% were substitution errors in Weber's (1970) study. Samples of children were used in both cases.

Compound substitutions (along with other compound errors) proved to be indicators of difficulty with text. Their production helped to define the behaviour of the group (d) 'word attackers' where they occurred alongside graphophonemic beginning proximity. They were more often produced by the sample of children than the adults, however.

Insertion. Insertion errors in this study, having been made mainly by more competent readers and being largely semantically acceptable, have been considered throughout as a sign of competence. They were one characteristic of the 'meaning seekers', being produced hardly at all by people in the other groups. It is thought however that they may also signify a lack of awareness of the unchangeable nature of the printed word, in that reading matter in general is not open to interpretation while being read. It may be that the activity

of oral reading induces this kind of personalisation of text by more fluent readers; those who are capable of rephrasing to suit their own verbal patterns.

Omissions. Omissions were produced relatively infrequently by the adults, but appeared in the behaviour of group (f) 'imperfect predictors' along with function-word errors and following context acceptability.

Non-response. Non-response errors were considered by Beimiller (1970) to be a sign of progress in the children he observed. In this study, perhaps because of the nature of the sample, non-response errors were made by the least competent of the adult readers, and much less often by the children. They appear, rather than the 'thoughtfulness' suggested by Beimiller, to suggest lack of confidence and insufficient knowledge to tackle the task. This is in comparison with say, 'nonword' responses made by more able readers in the adult sample, alongside greater graphophonemic accuracy.

The non-response error was the cause of most variation in the sample of adults, such that the sample could be divided into two fairly clear groups on the basis of its occurrence together with requests for assistance from the Researcher.

b. Nonwords

The children in this study produced most nonword errors, far more proportionately than the adults. Of the adults, it was not the readers experiencing most difficulty who produced them but the group (e) 'structure users'. These were readers who achieved a high level of syntactic acceptability among their errors but little evidence of attention to meaning and relatively poor graphophonemic decoding skills.

c. Graphophonemic Proximity

The measurement of the graphic and phonemic proximity of errors to text both separately and as a combined variable provided important

information about strategies being used. Examining each alone provided insights into the use of visual and phonemic information separately; examining them in combination provided a useful and relatively simple measure against which to compare other variables such as semantic and syntactic acceptability.

Three main subcategories of errors with varying degrees of proximity proved to be important for grouping the adult reading strategies; 1) those errors which showed no proximity, 2) those whose beginnings corresponded with the text and 3) those where a single graphic or phonemic element in the oral response was different from the text. Very few of the errors made by any group of adults showed no proximity at all, the main division being between those who could go no further than the beginning of a word and those who were better at 'decoding'. The sample of children relied very heavily upon graphophonemic information. All the 'dependent' adult groups, 'daunted readers', 'word attackers' and 'structure users' produced errors with 'beginning only' proximity and all the 'independent' groups, 'limited predictors', 'decoders' and 'meaning seekers' appear to have been better at using graphophonemic information. Poor decoding went together with a lack of meaningful responses and small amounts of self-correction. With the 'daunted readers' and 'word attackers' there was a lack of syntactic appropriateness and a high error rate too, while in the group of 'structure users' beginning proximity went together with a low error rate and high level of syntactic acceptability.

Those groups which were less dependent were all better at using graphophonemic information either with meaning in the case of the 'meaning seekers' or with limited meaning in the case of the 'decoders' and 'limited predictors'

d. Syntactic and Semantic Acceptability.

The syntactic and semantic acceptability of errors were examined both separately and jointly. When examined separately it could be seen in general terms that readers produced responses which fitted with grammatical structure more readily than those which were meaningful. Goodman (1973), it will be remembered, insisted upon syntactic acceptability being a prerequisite for semantic

acceptability. Although technically this appears to be reasonable, there are other kinds of meaningfulness which do not depend upon the grammaticality of a response. The 'theme-related' responses described by Mulholland (1986) when observing the reading of secondary school remedial readers, are of this kind; meaningful to varying degrees but not necessarily structurally acceptable. Such responses could be explored in more detail with readers like those observed here. In this study however, the emphasis was upon breadth so that other kinds of relationship between response and text were not pursued. Had they been, the incidence of semantic acceptability among errors could well have been higher.

The semantic acceptability which was measured contributed significantly to the definition of the six adult groupings. The four categories of acceptability appearing to have most influence were 1) semantically unacceptable, 2) acceptable in following contexts, 3) acceptable in whole sentence contexts and 4) acceptable in whole passage contexts. The other degrees of acceptability which were recorded were apparently not significant in terms of strategies differentiated by the correspondence analysis. It may be that the closer examination of semantic acceptability in a variety of contexts would be more fruitful in a specific study in depth.

e. Self-correction and Intervention.

Self-correction and intervention were recorded because of the changes they produced in a text in the process of being read; the one springing from an awareness of error and an attempt to correct it on the part of a reader, and the other either from an awareness of error or inability to respond, resulting in a request for assistance.

Self-correction was high among the most efficient of the readers observed, the 'decoders' and the 'meaning seekers' but was not consistently accompanied by low error rate. It is possible that self-correction is not a strategy which can be taught, but a product of textual awareness.

The records made of intervention proved to be a valuable guide to dependency in reading which was one of the major classifying factors in the adult sample.

3. The Use of Other Measures.

a. Comprehension Questions.

Comprehension scores correlated generally with the amount of semantic acceptability among the errors made, so that the 'meaning seekers' scored well and the 'daunted readers' poorly.

Comprehension was also found to be linked to dependency, and those readers requiring most assistance from the observer were found to have understood least. It would appear therefore that although a supplied response increases coherence in otherwise very disjointed reading, because it is external to the reader it does not necessarily increase the likelihood of comprehension in the way that self-correction does. Successful comprehension therefore, appears to be influenced by the personal approach or strategy used by a reader in a way that is not affected by outside support.

There is also felt to be a link between the answering of comprehension questions and understanding of the task and this is discussed below in a brief section on metalanguage and metacognition.

b. British Ability Scales.

Although the BAS results were intended really as no more than an interesting general guide to aptitude and were used in a purely exploratory fashion, the links which emerged between the ability to define words and semantic acceptability were revealing. That people who produced high proportions of semantically acceptable errors also did well on the definitions scale would seem to imply that certain statements made by those involved in literacy provision about the supposed linguistic competence of non-readers were ill-founded. The correlation between language proficiency and reading skill as illustrated by this study could be taken to mean that language deficit played a part in difficulties with reading in the two samples (see chapter 2). The fact that both samples produced lower scores than the expected norms for all the scales used suggests other, more general difficulties too.

c. Short Term Memory.

The digit span scale was used to provide a simple indication of general aptitude. It was also supposed that short term memory would be relevant to reading and that particularly poor short term memory might be a correlate of inadequate reading skill. In order for instance to make accurate predictions on the basis of preceding text, it would be necessary to hold meaning, structure and vocabulary in the memory. The results of this research indicated that most subjects performed averagely well on the short term memory scale used, a digit recall exercise, and links with variations in reading skill were not so readily apparent here as in the case of scores on language related scales. It should be stressed however that all the BAS measures used were simply intended to provide a rough guide to ability and were not intended to be central to the research. In the event, the language related scales were closely connected to reading strategy and the recall of digits scale apparently was not.

Most of the short term memory scores recorded here were average, although there were some variations (Tables 8.1 - 8.4), which seem to bear out Ellis's (1984) suggestion that short term memory span is not directly related to reading skill. Ellis quotes research by Torgeson and Houck (1980) with dyslexics, showing that not all dyslexics have poor memory spans and suggests that memory span is not related to reading ability in a causal way but that both difficulties may have their roots elsewhere, possibly in problems of the left hemisphere. Short term memory in reading, rather than being connected to a limited storage and recall capacity for unrelated items, as in a digit recall test, appears rather to be closely linked to the ability to encode meaningful information. This would appear to be borne out by Butterworth, Campbell and Howard's (1986) findings that a subject with a reduced digit span was competent on the syntactic analysis and comprehension of short sentences, although she had difficulty with long sentences and sentence repetition. Their results, they concluded "dissociated phonologically mediated short term list recall from sentence parsing and comprehension".

These findings leave questions about there being a direct relationship between word recognition difficulties and short term memory span limitations. It seems more likely that that memory skills associated with an inability to convert morphemic items into units of meaning for storage is partly the cause of difficulty in poor readers, together with problems of recall from long term storage.

The importance of 'understanding' as an aid to recall was pointed to by Smyth, Morris, Levy and Ellis (1987) when discussing comprehension and memory. They mentioned as evidence the work of Bransford and Johnson (1972, 1973) where readers were able to make more sense of passages with titles than without titles, and went on to suggest that elaborate encoding leads to more efficient recall.

It has been shown that short term memory span in particular is closely related to auditorily presented verbal material the storage considered being speech based. As evidence of this, experiments requiring subjects to articulate meaningless syllables while material to be memorised is being presented, have resulted in reduced memory span. Baddely, Thomson and Buchanan (1975) suggested that articulation is necessary in reading to convert written material into a speech code - an 'articulatory link'. There is certainly evidence to suggest that performance on short-term memory tasks is mediated phonemically (Conrad, 1964) and that short-term storage is speech based (Smyth et al, 1987). The difficulty with word reading and comprehension however is also linked with long term storage and retrieval, whereby previous experience is used to recognise words and understand text (Smyth et al, 1987). Therefore, if a reader is slow at reading or recognising words, another difference between good and poor readers might be their ability to convert written material into speech, the better readers being able to do this more easily than the poorer.

Notwithstanding the apparent lack of connection between short term span and reading in general, a possible connection was suspected between memory span and the interference experienced by slow readers from their own pace and number of errors. So that the more slowly a reader progresses through text, and the more difficulties s/he encounters, may mean that s/he is less likely to

understand what is being read. The short term memory facility in reading is concerned with holding units of sense in the head, or in the case of word by word reading, a number of morphemic units.

All this suggests a more complex procedure than the simple recall of unrelated verbally presented items. Smyth et al (1987) suggest the existence of multiple short term stores, both for perception and production. It may be therefore that while non-readers can perform averagely well on simple short term digit tests their greater difficulty with reading is related to the more complex nature of the short term memory component there.

In summary, the digit span test may have been appropriate as an indicator of general ability but a different kind of memory test would be needed to investigate the relationship between memory and reading ability.

Metacognition and Metamemory.

There has been increasing awareness on the part of psychologists and researchers of the importance of people's concepts of the processes in which they are involved. Metalanguage, with reference to reading has been widely discussed as being important to concepts of the reading process and to reading success (Reid, 1966; Downing, 1970; 1979). Having the language with which to discuss a process clarifies what is going on and allows the process to be verbalised.

Recently there has also been concentration upon metamemory, or what is known by subjects about the memorising process, as being important in memory related tasks. Metamemory is said to account for some of the differences between adults' and children's approaches to learning tasks. It has been found that although young children can put plans into operation, they are not aware of the processes involved and are unable to use metamemory to improve their performance, whereas adults can use it to devise strategies for remembering. One such strategy is mnemonic which children are unaware of but adults are able to make use of (Gruneberg and Morris, 1987)

It has been said that there is apparent improvement in adult short term memory with ageing which cannot be directly attributed to memory improvement, but rather to the use of adult learning

strategies. The ability to modify or improve learning strategies consciously could have implications for the ability of certain adults to learn to read. It should be possible for adults to become aware of existing strategies and to participate actively in ways of modifying and improving them.

Examples of difficulties which might well have arisen as a result of inadequate task cognition or perhaps a form of 'metacognition' arose during the collection and analysis of data from the adults. It came to the Researcher's attention during the analysis of comprehension and definition answers that there might be a question as to suitability of the type of comprehension measure used (questions after a passage) for people possibly unused to the convention of comprehension question answering which insists on the answers bearing a direct relationship to what has been read rather than for instance, to knowledge of life. These reservations about the mode of measurement being used, contributed to the decision to isolate a separate group of responses, true but incorrect, which seem illustrate possible differences in conceptual standpoint between experimenter and subject. In a more conventional educational setting, no doubt many such responses would have been marked unacceptable or wrong.

On the same basis it was necessary to decide how exact an answer would suffice to indicate general comprehension (which was what was being measured) given that an exact answer would almost certainly imply an understanding of the specific requirements of the test, the context bound nature of the question and a clear mutual understanding between subject and questioner of the meaning of each question. It is also not completely clear whether successful comprehension question answering of any kind is by its nature an acquired technique requiring practice or whether say, lack of specificity on the part of a subject with regard to text can be taken to be either a factor in illiteracy or symptomatic of wider psycholinguistic deficits.

There were certainly doubts surrounding the extent to which task perception of the adults as a total group coincided with that of the Researcher which, incidentally, did not arise until the examination of the data. This inadequate understanding of the

task was also apparent in the results of the British Ability Scales which indicated some difficulty in understanding exactly what was required when a 'definition' was asked for. Even when the task was explained in the most simple language, students had difficulty in responding adequately to the requirements; expressing the meaning of words. This may have been due to a lack of understanding of the task in some cases or it may have been due to a genuine lack of understanding of the vocabulary they were asked to define in the scale. The responses which were recorded verbatim, require a more detailed examination which is felt to be outside the scope of this thesis before any definite conclusions can be drawn. It may be however, that the difficulties experienced by subjects with comprehension and definitions reflect inadequate or inappropriate concepts of the tasks similar to those found by Donaldson (1978) with young children who had difficulties with Piagetian tasks. If this were to be the case, careful tuition and meaningful explanation might be capable of bringing about improvements.

The problem may lie therefore in misunderstanding of a question. Everything was done along the lines suggested by the BAS publishers to guard against this in terms of repeating the questions and prompting a subject to say more. There was also the possibility of it being difficult for subjects to find alternative ways of expressing ideas. This could be relevant to their ability to predict words and sentences in a text, since successful prediction depends on the ability to select a correct response from a variety of alternatives. Two things could go wrong; the selection procedure could be faulty, or appropriate alternatives might not be readily available.

For example, where errors were produced which bore no relation to the text at all, albeit few, the implication could be that somehow the meaning or the object of the task had been lost. It could be said, that if a person makes this kind of error, he simple 'doesn't know how to do it', unless some mitigating circumstances could be seen to have intervened at the time, like panic, for instance. There may be a difference in degree but not kind, however between the error which shows total incomprehension of the task and those, greater in number, where, say, syntax and

meaning are almost intact but one phonemic or graphic element has made the response into a nonword. The explanation could equally well be poor understanding of the task here as 'carelessness' or insufficient attention to detail. Donaldson (1978) made the suggestion, as a result of observation of children which showed that many were more capable of reasoning than they had hitherto been given credit for, that "language-learning skills are not isolated from the rest of human growth....(a person) first makes sense of a situation, then uses this kind of understanding to help him make sense of what is said to him". A superficial idea of what is involved, resulting in mouthing words to text and even extracting some meaning from this, may be insufficient to increase a reader's depth of understanding of a complex task or set of skills like reading. It may be that carefully considered clarification is needed.

One point worth making is that whereas the recorders and analysers of errors in the 1970's were impressed by the syntactic appropriateness of the errors of young children - demonstrating early linguistic awareness - expectation tends to be greater when it comes to adults. The adults in this study showed varying levels of awareness of the nature of language, in that they maintained syntactic structure and to a lesser extent semantic appropriateness in their errors. But too often they were insufficiently aware for adults, even implicitly, of what they were aiming at, to convert the activity into an integrated whole leading to the extraction of meaning. They were also insufficiently aware that text could not be changed by a reader. Reid (1983) made the point that reading is not a dialogue but a one way process.

SECTION III. ANALYSIS OF THE DATA.

It was decided to concentrate on the results of the analysis of oral reading errors as the main corpus of data together with the results of other measures used, in so far as they highlighted aspects of the analysis of errors.

Finding computer packages to cope with the data together with the necessary guidance for their use, was difficult. Cluster analysis was tried as a means of grouping the subjects and their errors but was unable to cope with the two sets of variables simultaneously.

A manual 'grouping' analysis along the same lines as correspondence analysis was considered and in part attempted. The divisions it provided were similar to those of the correspondence analysis but could not have encompassed the juxtaposition of so many variables simultaneously or have been so neat.

Correspondence analysis has now been helpful. When used, it had only recently become available and was put forward as an idea when another package, Clustan (Wishart, 1978), had proved inadequate. The error variables used with the Correspondence Analysis were selected to fit in with the maximum the package could cope with and were those which emerged as illustrating the main differences between the adults and children in Chapters 5 and 6 and in the light of the most prominent variables in the Tgroups in Chapter 7. The subsequent manual analysis using the correspondence groups as a basis provided final groupings.

It should be said that although the final groupings have to a large extent borne out one of the Researcher's original hypotheses, that the Literacy Scheme assessments were inadequate, and although the intention throughout was to arrive at groupings of this kind, because of the complexity and quantity of the data collected all stages of the analysis emerged as result of each other. Each was dependent on the previous. That is to say that although a final aim was in view, the complexity of the data at some points in the analysis made it difficult to do more than hypothesise about the analytical possibilities until foundational steps had been taken.

CHAPTER 10. THE UNDERSTANDING OF ADULT NON-READERS

INTRODUCTION

Finding syntactic, semantic and graphophonemic trends among adult reading errors ought to tell us not so much how they are making progress, but point to difficulties and the techniques they use to deal with them. It may also point to intrinsic awareness of linguistic rules being insufficient in itself to guarantee successful reading.

Paradoxically, with so much information available to them, many of the adults observed even among the most competent were insufficiently literate to function satisfactorily. Withall that oral linguistic structure develops into adulthood, so that adults in general have a more developed syntax and vocabulary than say, the average five-year-old; they were, none the less unable to process text adequately.

This discussion deals with the understanding gained of the strategies and approaches to text used by adult literacy scheme students from the data examined in the previous chapters. It attempts to make suggestions about the pedagogical implications of the findings and ways in which they could be used to diagnose adult reading difficulties and contribute to the provision of appropriate tuition in literacy schemes.

The chapter begins in Section I with a discussion of the findings and understanding gained of the readers and their learning strategies, and Section II discusses the implications of the findings for pedagogy. Section III makes suggestions about how they could be used for placement and diagnosis in literacy schemes.

SECTION I. THE FINDINGS

The main findings about the adult non-readers observed in this study which will be discussed in this section were as follows:

1. The adults' strategies were seen to be different from those of the group of twelve year old children observed. They were also different from strategies of younger children reported in the literature.
2. The adults who were observed could be separated into groups according to the the kinds of reading error they made and from these, the strategies they used to read.
3. The groups which emerged did not form a clear cut continuum from poor to good and did not correspond to the groupings used by the literacy scheme.
4. Confidence or assertiveness were found to play a large part in successful reading strategies in that those people who regularly asked for assistance, were not such proficient readers as more independent subjects.
5. Readers varied in their ability to use graphophonemic information when reading. Its use was found not to be linked so closely to reading success as more semantic strategies.
6. Certain grammatical functions caused more difficulty than others, function words in particular.
7. Emphasis upon meaning in reading strategy was a clear correlate of reading success, much more so than syntactic accuracy.

What emerged from the data gathered was that there were six distinct groups or subsets of readers among the adults observed identifiable from the strategies they used to deal with text. All were different, although some overlap was apparent, and none of their reading behaviour corresponded closely with that of the group of twelve year old children observed. The groupings which emerged as a result of the correspondence analysis were not part of a clear-cut continuum from poor to good based either upon error rate or upon the readability of text they were able to attempt. Neither did they correspond closely to the groupings (Tgroups) designated by the Literacy Scheme for teaching purposes on the

basis of the Holborn Reading Test, although aspects of the behaviour of two of the groups were linked to that of the top and bottom groups (Tgroups 1 and 7).

It was found therefore, with reference to the samples observed that the behaviour of the adults was fundamentally different from that of the children, that the Tgroups set up by the Literacy Scheme did not discriminate in any helpful way between the students as regards reading difficulty or level except the very top and the very bottom and that the adult sample could be split into six readily identifiable groups on the basis of their reading strategies. This was in contrast to a greater homogeneity in the distribution of the children's responses. In addition and founded largely on the above emerging patterns, it was concluded that differences in type of reading error suggested different concepts of what successful reading involves and were related to subsequent success in comprehension. It is also tentatively suggested from the findings that reading technique which results in difficulty is connected in some way to verbal reasoning ability, in this case in the form of a definitions test. The reader's ability to handle the 'metalanguage' of the task was also found to relate to success or otherwise. And finally, it was concluded from the data, given the various passage levels achieved by subjects in all groups, Tgroups and correspondence groups, that the readability formula which was used to grade the texts, albeit in a very general way, was inadequate as a guide to what constitutes difficulty for adult readers.

1. Adults and Children

It was generally assumed by the organisers of literacy tuition when the study began that the specific reading difficulties of adults would be similar to those of children and that tuition could follow similar lines with modifications based upon social reinforcement and moral support, attention being given to the part played by motivation and interest in adult learning generally.

Most available information about adults had been gathered either by interview or by questionnaire; very little was available as a result of close observation and interaction with adult non readers themselves and as a result there was a somewhat philosophical acceptance of child-based norms for assessment.

The Researcher was of the opinion that differences between adults and children would hinge not only upon a general approach to learning brought about by age and experience, but also upon specific difficulties with text and the individual strategies as yet unrecorded, which were used to overcome them.

Young Children

There is little similarity between the behaviour of adults in this study and that of young children first beginning to read.

At first there appear to be similarities, in that both children and adults make errors and that they fit with text to a greater or lesser degree. Young children's reading however, forms part of a series of ongoing developmental processes. Their language is not fully developed. The texts from which they are taught are limited and the language generally carefully controlled. Their attitudes and approaches to the task are different from those of adults and they have on the whole not yet learned to fail as most adult non-readers have.

Children at the beginning stages of reading are presented with more limited alternatives than adults, in terms of variety of vocabulary in a text, and also have been seen to follow a procedure which entails selecting only from the reservoir of words already experienced in print. They do not in general select from their complete oral vocabulary. Thus they are selecting syntactically and semantically appropriate words from a limited bank.

The newness of the task to children possibly leaves room for kinds of learning which are not available to adults who have already failed. Errors made by young children can be used as indicators of progress.

However, it would be unfounded to say that adult non-readers or "sub-literates" as Charnley and Jones (1979) termed them, are

different from others in every respect, and therefore a new phenomenon. Many of them may have developed from remedial situations like the one populated by the 12-year-old sample here. Yet their behaviour is different. Some have lost confidence, some have reasonable but inadequate skills and many are in between the two polarities. The difference between them and the children lies in their adulthood, their greater experience of life, their exposure to language in various contexts, the lack of task reinforcement and a lack of spontaneous enjoyment of reading.

The main possibility for comparison of this research with the results of child-based error analysis is in the linguistic nature of the errors produced. There are certain points of comparison in that self-correction is consistently seen as a sign of competence and awareness of meaning; syntactic acceptability while being an indicator of linguistic awareness in young children, is by itself more an indicator of insufficient attention to meaning in adults.

Children's ability, it has been widely assumed, is part of a continuum from poor to good, in stages (Beimiller, 1970), whereas adults have during their development acquired different approaches to learning, less rule directed and less consistent than those of children. Indeed the results of this study demonstrate the existence of at least six types of reading strategy in use among adult non-readers, at different levels of proficiency.

The reading ability of a young child is regularly compared to the norms of an age group, whereas for an adult there is no true point of reference apart from that of the 'competent' reader.

The Sample of Children

The twelve year old children observed in this study experienced greater difficulties with meaning all round than the adults, especially with level 4, the most difficult passages, and the explanation for this was at first thought to be twofold. The problem may have been in part due the adult nature of the passages used. Although they were of general interest, it is recognised that they were originally written for adult readers; the 12 year old sample being the youngest it was thought appropriate to use.

Another possible explanation was felt to be in the differing structure of the two samples. One respect in which they differed from the outset was that the sample of adults was modified as the observations proceeded, more adults having been included in the sample as they became available; and because of the initial limited number of subjects to whom access was granted, little choice was possible as to what level of reading new recruits should be capable of. Some therefore, who were considered well able to cope with level 4 passages from the outset, entered late in the observations, whilst the sample of children remained the same, except for one or two who dropped out, throughout the study; so that all progressed from the easiest passages upwards.

The major differences that emerged between the two samples as the analysis progressed did indicate however that the results of the selection procedures used were more a product of the basic difference in the nature of the 'populations', than responsible for it. That is to say, the children were self-selected already in a remedial reading class and in the same year group, while the adults were a more random sample. The 'population' being the whole groups from which the samples were selected.

It appeared even in the initial stages of the analysis that adults and children were viewing the requirements of the the reading task differently; and behaving accordingly. It was supposed at first glance that while the children were searching for accuracy, the adults were searching for meaning. It later emerged that what first appeared as a general semantic awareness on the part of the adults was actually only provided by a subset of what was a heterogeneous sample. Certainly the children were more successful at using graphophonemic than semantic information which may in part have been due to the type of instruction they experienced, perhaps in the same way as first grade subjects described by Barr (1975) who were highly dependent on initial letters as a result of teaching methods. The children took a more uniform approach to the task than the adults. As a sample they relied heavily on decoding. They needed assistance with compound, more than other errors; occasions when graphophonemic contact with

the text had been lost; and the children made greater proportions of these than the adults. That is to say, if a response was graphophonemically close, it would be accepted and reading continued.

All the differences in scores between syntactic and semantic appropriateness of errors indicate that it was easier for subjects to keep syntax intact through a passage than meaning; syntactically appropriate scores being higher in the context of the passage than the sentence, but semantic scores being the other way about. The amount of syntactic accuracy in reading was little different for the two samples, albeit the children showed slightly lower proportions of semantically accurate prediction within sentence boundaries. However, quite often when syntax was accurate, the children in particular, were still far away from achieving responses which made sense. The meaningfulness of the children's responses depended heavily upon their being graphophonemically accurate, so that if they could achieve a match between the beginning and ending of an error with text, then semantic acceptability was more likely. It is perhaps not unreasonable to suppose therefore, meaning being so strongly linked with the sound and visual appearance of individual words, in the children's minds that this was a possible source of misconception about the reading task.

All the above at this stage appeared to be less true of the adults, some of whom were often capable of progressing no further than graphophonemic proximity with the beginning of a word in the text, as with the 'word attackers', and yet as a sample produced greater proportions of semantically acceptable errors than the children.

In spite of the children's competence at graphophonemic accuracy of response when reading, which appears to have reflected the teaching methods they experienced, their comprehension was poor and semantic acceptability of their errors was low. This raises a question about how effective the teaching of phonics and visual identification can be of itself, when used with adult students; especially when their tuition is relatively short and

infrequent compared to children's. It is possible since they were not institutionalised in the way that children are, that they approached their reading in a less mechanised way. They certainly did not experience the reinforcement of a daily teaching environment in the same way as the children.

Intervention was more common throughout the adult sample than among the children, sometimes apparently together with self-correction, perhaps an indication of a mixture of strategies being employed. In some respects the error patterns of the adult groups gave weight to Boraks' (1978) finding that adult error patterns were more idiosyncratic in nature than those of children. However her suggestion that the error patterns of adults and children were broadly similar has certainly not been borne out here.

The children's comprehension scores were less successful than the adults' in general; a possible indication that the content of the reading material was too adult. These fitted with generally low semantic acceptability scores.

The adults who found reading most difficult tackled the problems in a different way from the children, so that the children did not fit into any continuum of which the adults were a part. This is important - the adult <u>sample as a whole</u> was <u>not</u> better or worse than the children and none of the separate adult groups corresponded to the sample of children.

2. Grouping Adults by Reading Strategies

The six groups emerging from the analysis point to a number of strategies and combinations of strategies being used by adults for whom reading presents a problem. In the past, Vernon (1979) attempted to group children who were retarded readers according to their reading deficiencies. It is not clear what method of testing he used, but he worked on the assumption of the existence of a successive acquisition of skills relevant to reading.

It is interesting that his subjects showed a variety of problems, and could be grouped, but unlike here, Vernon was assuming a continuum of acquisition and that poor readers stopped at different stages on it.

If error rate is taken as a guide to reading success it is possible to see that certain combinations of strategy are more sucessful than others. Comprehension is the clearest guide however, to reading success, and perhaps takes precedence over accuracy of reading.

Success among readers in the sample used here was based on several kinds of behaviour, in that some individual strategies appear to have been consistently more related to low error rate and high comprehension than others. Flexibility of approach springing from the use of a variety of strategies was one of the best indicators of success, so that while there remains no clear cut continuum between poor, good, better and best it appears that the more independence and the more variety, the greater the success. An example of this is in the behaviour of the 'meaning seekers', who not only used semantic information, but were making successful use of other strategies as well.

It can be seen therefore that the 'daunted readers' could both read and understand very little, floundering at the very beginning of the task. The 'word attackers' similarly, read and understood little, yet had more idea about the use of information from the beginnings of individual words as a clue to their identification.

Among the groupings found here can be recognised the populations identified by Howatt (1977); subjects in correspondence groups (a), the 'daunted readers', and (b), the 'word attackers', are very like those described by him respectively as 'underachievers' and 'low achievers'. This research has taken their identification a stage further into the specific nature of their reading behaviour. Here they were characterised mainly by the ability to make meaningful responses, dependence upon graphophonemic and grammatical information or non-assertive behaviour resulting in non-response errors accompanied by observer intervention. The Correspondence groups each contained for the most part subjects from various of the original Tgroups, all of whom had read passages at a variety of readability levels, suggesting also that readability measures are inadequate predictors of difficulty for adults.

Within these groups also, it was found that certain reading strategies illustrated by say, the graphophonemic or semantic nature of the errors made, were linked quite closely to scores or measures of comprehension, word reading and definitions ability and short term memory. For example, people who read for meaning also performed well at defining words, while those who relied more heavily on graphophonemic information were better at reading words out of context. Many of the adults and almost all the children found the linguistic exercise of defining words, as specified by the British Ability Scales (1979), difficult if not impossible.

In general terms, the 'daunted readers' [correspondence group (a)] were characterised by a lack of confidence in dealing with text. There was an inability or unwillingness to respond when in doubt, and fairly heavy dependence upon the Observer for help. The variations in the use of graphophonemic information between the subjects also seems to indicate a lack of certainty and direction which fits in with the relatively low semantic acceptability. The low scores on the BAS scales, relatively low comprehension and high error rates reinforced a picture of lack of direction and a non-assertive approach to the task.

The behaviour of the 'daunted readers' here, and to some extent, also the 'word attackers' was similar in character to that of poor readers described by Schwartz (1977), where he commented that they were deficient in the ability to apply strategic operations to new situations. He talked of a "general strategic deficit which can manifest itself at any of a number of different skill levels". Howatt (1977), in a description of the 'archetypal student' a composite arrived at through the data collected in the Strathclyde survey, said, "He would not be a beginner, but equally would not have acquired the necessary confidence and skill to approach a reading task that the 'average adult would regard as straightforward and with the expectations of success that others might take for granted." One interesting point was the variety of the original teaching groups (Tgroups) both 'daunted readers' and 'word attackers' came from, suggesting that these strategies could appear to be relatively competent and possibly their dependency overlooked.

The 'word attackers' depended on visual and phonemic information which went only as far as the beginnings of words. The difference between these subjects and the 'daunted readers' and 'decoders' was that readers in both those groups were better at using graphophonemic information; the 'daunted readers' despite a high incidence of non-response errors, although they and the 'word attackers' produced similarly low BAS and comprehension scores and high error rates.

The emphasis in the behaviour of the 'meaning seekers' was on the search for meaning from the text; it related quite closely to competence on the other scales. This group was distinct from the others in this respect, their semantic and linguistic behaviour setting them apart. Awareness of meaning was demonstrated in self-correction and in relatively high comprehension scores, not to mention the 'unrelated' definitions scale.

3. Scale of Reading Prowess

Although some readers used strategies which provided greater success in reading than others, the six groups could not be arranged in a linear sequence from poor to good. The division of the groups into those which exhibited dependency and those which were independent defined fairly clearly successful and less successful strategies and within those two sets of three groups again there were variations in reading achievement according to strategy; meaning orientation being connected to success; lack of confidence and an emphasis on decoding being less profitable.

The most important point to be made here is that readers are not expected to progress from group to group in stages as they change or acquire strategies. For those who are more independent, emphasis upon the incorporation of a 'meaning oriented' approach is needed; for the dependent reader moves towards greater independence are required for greater success, this too may be based upon a greater attention to the meaningfulness of the task. Longitudinal case studies would be required in order to discover how, say, a 'daunted reader' would progress under suitable teaching to become a 'meaning seeker'.

4. Dependent vs Independent Readers

On examination of the six groups, there were some clear divisions to be seen. One of the first characteristics of readers to emerge was the amount of dependency of the readers in the different groups. Dependency was measured by the amount of non-response errors and observer intervention required by the readers. Three of the groups were notable for the amount of assistance they needed and the other three for using more independent strategies.

Boraks (1981) in her study of adult beginning readers found a habit among the poorest of asking for help, very similar to that found in this study. Gambrell and Heathington (1981) found that "adult poor readers tend to refer to external sources, such as another person, to resolve comprehension failure and are not aware of independent and internally generated strategies".

Readers who made a high proportion of semantically unacceptable errors and failed to correct them, tended as shown above to be very dependent, judging from the amount of assistance needed. Where there were relatively low levels of semantic acceptability with little correction, there were also low levels of comprehension. Where subjects were helped, albeit they had been unable to correct unassisted, comprehension was slightly better than where errors were left unchanged.

Observer intervention, in the form of 'help', performed a function similar to self-correction, for those unable to correct themselves; but the levels of comprehension achieved in this way, although better than if no help had been given, were not as good as when self-correction was used. This is also connected to the amount of dependence and accompanying awareness possessed by some people, in the process of reading. Self-correction is in itself a measure of independence in reading, in a different way from the 'independence' involved in not asking for help, or being unaware that an error has taken place. In these instances, although dependency may temporarily be disguised, it becomes apparent once more when it is necessary to have extracted meaning from a piece of text, as in the case of the comprehension questions. The children in this study asked for little assistance, yet their comprehension was quite poor.

It can be seen that although the dependent readers attempted the task, they had an unsure command of most strategies described and were differentiated only by one or two which they used effectively, together with their error rates. For the most part they were looking for a solution to their problems outside their own activities.

The independent readers used a greater variety of strategies to varying effect. The most successful group the 'meaning seekers' using most of the described strategies well, being differentiated from the others by their low error rates and above all by their effective use of meaning in reading. This was evidenced by the high proportion of their errors which were semantically acceptable in the whole of the passages which they read.

All the independent readers were fairly skilled at using graphophonemic information in decoding. Apart from meaning as a defining factor, separating the meaning seekers from the rest, the other two independent groups were separated by their varying use of syntax and self-correction.

In addition to the amount of assistance needed by each of the sets of three groups, there were other kinds of error which were consistently low and high between them.

The independent set of groups had relatively good decoding skills and all made a number of errors for function words in the text. The errors of the dependent set of groups showed consistently low semantic acceptability and undeveloped graphophonemic skills.

5. Graphophonemic Information

All the groups used some graphophonemic information when reading and the extent of its use was in part related to the amount of success achieved. Using graphophonemic information can provide a certain amount of independence in reading, but is sufficient in itself without attention to meaning. This is demonstrated in the case of the 'decoders', who achieved relatively poor understanding although their decoding was sufficiently competent to give them a fairly 'independent' approach to text. It is important in the end

that readers are able to deal with unfamiliar items of text, but decoding even when competent, is a limiting technique when it is relied upon too heavily. Readers like the 'daunted readers' and the 'word attackers' should be encouraged to see decoding as only one of a number of strategies for reading including especially attention to meaning, rather than viewing it as the embodiment of the task, since it is an area with which many such people have continuing difficulty. Its emphasis ac not only reinforce feelings of failure but encourage non-productive strategies.

6. Function Word Errors

The production of errors for function words by the 'limited predictors' was thought to be connected with the occurrence of specific syntactic structures in the text or to the nature of the function words themselves, graphophonemically. Function words are often short (monosyllabic) and incapable of decoding; they are also not context (meaning) carriers in the same way as nouns and verbs. Although part of the structure of text they have relatively high redundancy which might go some way to explaining their frequent omission.

That function word errors should also be connected in some way to following context acceptability emphasises their linking behaviour; where such errors occurred for some people there was a break in continuity of sense and structure, such that whatever preceded the error was lost. This could imply a lack of understanding of the meaning of function words too and echoes some suggestions by Marcus (1971) that problems with function words, including prepositions, 'correlatives' and relative pronouns arise from their not being understood.

The fact that certain words do not carry meaning, too has been discussed, by Potter (1987) suggesting that function word errors have different characteristics from what he calls 'semantic errors'. As in this study he found that function word errors tended to be contextually acceptable and visually dissimilar while content errors were the reverse.

He has suggested that function word errors are made after the words have been correctly recognised and that the errors are governed by word frequency and the personal usage of the reader. This would fit in with function word errors having been made by more independent readers, but does not explain why a greater proportion of the errors of the dependent readers were not for function words too. The 'limited predictors' were the poorest of the independents looking for meaning but least competent at it.

7. Meaning

There are several kinds of behaviour associated with the successful extraction or otherwise of meaning from reading such as syntactic and semantic appropriateness, self-correction or the production of nonwords. Many of the adults, had deeply ingrained notions of what constitutes reading, such that it had little to do with meaning or language and little connection with what it is possible to achieve. Reading for them had become a separate set of skills rather than an integrated activity. To quote Smith (1983) "the insight....that differences on a printed page are meaningful must be....the basis for learning written language".

Most of both samples, adults and children, whatever their error rate and however poor their comprehension, achieved at least some measure of <u>syntactic accuracy</u>; at the very least between an error and its immediately surrounding words. This may be interpreted in two ways. Given that children of five years have been shown to exhibit this same syntactic awareness, what might be thought surprising is that it had not developed further in some of the adults observed here. Cox (1976) in her study found that adults in the normal course of development acquired certain structures late. This may be seen to have negative implications for further progress in poor readers. An alternative view might be that in spite of their difficulties, the adults in the sample observed here, retained a level of syntactic awareness that could be put to use in teaching.

Even where there was acceptability at less than the sentence level, it is apparent from the data collected that contextual

constraints were in operation, although not completely followed through. Subjects were often aware of and influenced by context, but seemed unable to put this knowledge to effective use. This is similar finding to that of Gambrell and Heathington (1981) in a study on the metacognitive awareness of poor readers where they found that "adult poor readers are not aware of strategy variables or their role in facilitating comprehension".

An example of this is where an error fitted syntactically with part of a sentence following or preceding it, appearing to act as a kind of 'break' in progress, at which a change of direction was made, often in order to fit the following text with the error. There were times when an error fitted not only either with what preceded or followed, but also perhaps with more of the sentence, on the other side of it, although not as far as either the beginning or end of the sentence. There were examples of this particularly in the behaviour of the 'limited predictors', who had difficulty with function words and also produced errors which were acceptable in following contexts. There was perhaps underlying this tendency, some difficulty in holding on to syntactic structure and meaning while at the same time dealing with the immediate problem of word recognition. This does not imply complete ignorance of syntactic constraints but a difficulty with the coordination of tasks which for most competent readers appears to be automatic. For instance, the simultaneous homing in on a specific element, while being aware of its appropriate place in relation to a wider context. This confirms Boraks (1978) conclusion that "poorer readers have all systems available but have problems integrating them. This is especially true for adults....the integration problem starts later and lasts longer for adults".

That acceptable grammar appears to be more accessible than meaning was illustrated in the results of the present study by clear divisions between groups of subjects on meaning related measures.

The production of errors with some degree of <u>semantic acceptability</u> was far more variable, particularly among the adult sample, than those which fitted with syntax. Although the

findings are tentative, it emerged that readers who produced semantically acceptable errors, the 'meaning seekers', also performed well on the verbal-reasoning definitions scale. The production of syntactically acceptable errors was not related to this scale or to comprehension to the same extent, but rather to the ability to read words out of context as with the 'decoders' and to a lesser extent the 'structure users'. If this were to be widely the case, and further exploration would be necessary to establish it, it would appear that people who are more competent in general linguistic ways are likely to give more attention to meaning in text than those who are not and are also more likely adequately to conceptualise the reading task. It appears likely that because of this they are more able readers than those who are none-the-less competent at decoding and achieving syntactic accuracy. This is clearly illustrated in the differences between the 'decoders' and 'meaning seekers' in this study. These suggestions would be further born out by the positive correlation of semantically acceptable errors with 'meaning related' variables like self-correction and comprehension seen in the behaviour of the 'meaning seekers' and, as in the case of the 'structure users', negative correlation with the incidence of nonword errors, which variables might be used as indicators of competence.

Again, the 'meaning seekers', the most competent readers observed here in this study, were successful at both word reading and definitions tasks. They also successfully used graphophonemic information when reading aloud. It appears therefore that there is a 'mediating factor' which ultimately determines whether reading is successful or not which, for the many who acquire literacy skills during the normal course of their development, may be built in. It is possible that, for those who have difficulties, it might be encouraged to grow with attention to appropriate metalinguistic and metacognitive instruction.

It should be added however that although the readers experiencing most difficulty experienced it in all areas and those who were more successful were similarly good at most of the facets of reading observed, even the most successful in the sample observed failed to be adequate readers.

Self-correction, like the production of semantically acceptable responses, implies an awareness of the need for meaning in text and in addition, an awareness of when meaning is not present. Semantically unacceptable errors were more often corrected than others in this study. Semantically acceptable errors were less often corrected. When a semantically appropriate error was corrected, it can be assumed that attention was being given to details other than and in addition to meaning, in contrast to the acceptance implied by an uncorrected semantically appropriate error. Difficulties were compounded for subjects who persistently made semantically inappropriate errors, in that the sense of the passage was changed, causing confusion. There might exist an awareness of there being something wrong, but still be an inability to correct it. This is when intervention is called for.

The production of nonwords implies a lack of coherent meaning being taken from printed discourse. For instance, if a word is meaningless, then so is the sentence and paragraph in which it occurs. This adds weight to the idea that basic concepts about the nature of text and the process of reading it, are lacking, all of which implies a lack of understanding of the nature of 'meaning' both in written discourse and in oral language and a degree of confusion about what is and is not meaningful in language. That is to say, in this case there is insufficient understanding that the oral representation of a morpheme in text must be meaningful, or that in the case of silent reading, it must be internalised as part of a unit of meaning.

It would appear notwithstanding that the production of nonwords was part of an active search for fitting responses, rather than simply 'stabbing in the dark'; an attempt to process text, leaving out the semantic dimensions. This was particularly true for the children, although the adults producing nonwords were not those experiencing most difficulty. The production of nonwords by both adults and children was accompanied by low levels of semantic acceptability and relatively poor comprehension, although the adults 'structure users' surprisingly produced relatively low error rates.

Barr (1975) found that young children taught with a phonics approach, made many nonword errors and concluded that method of instruction might have accounted for the error patterns she observed. This might well have been the case in the sample of 12-year-olds observed here, the differences between their behaviour and that of the adults are consistent with findings elsewhere. That the poorest adult readers in this study made fewer nonword errors than slightly more competent ones is a similar finding to that of Boraks (1978) in a study of adult beginning readers, where she too found that "the use of non-words did not evolve until a student had more reading skill and ability; or more instruction".

Comprehension and prowess in the definition scale showed quite a clear relationship with semantic acceptability and self-correction, while other variables were less closely related to them. When there were high proportions of semantically acceptable errors at sentence and passage levels, there tended to be few non-response errors, although apart from a few subjects, mainly among the adults from Tgroup1, who made no nonword errors, levels of nonword errors were evenly spread among the adults, in relation to semantic acceptability. It appears therefore, that if a high proportion of semantically acceptable errors can be produced, there is a good chance of understanding taking place, in spite of, in some cases at the same time, poor self-correction, and a relatively high level of uncorrected semantically unacceptable errors. One thing that did appear to relate to difficulty with comprehension, and also to relatively low levels of semantic acceptability in some subjects' reading, was the amount of assistance required from the observer. A point of interest is that there were subjects producing low semantic acceptability and relatively good self-correction, who none-the-less produced poor comprehension scores.

All of these considerations in the area of orientation towards meaning seem to suggest that semantic accuracy bears some relationship to overall confidence in the task (viz. non-response errors and independence discussed above). If the phenomenon involved is not confidence as such, it is certainly connected to

the ability of some people to produce more 'meaningful' responses to text than others. It may be that meaningful guesses even at the 'word for word' level of reading have an impact on overall comprehension in a way that graphophonemic accuracy does not. Gambrell and Heathington (1981) have suggested that "adult poor readers appear to perceive reading as a decoding process rather than as a meaning construction or comprehension task". This fits with the argument being presented here about the importance of both awareness and metacognition as part of a programme for reading improvement.

SECTION II. IMPLICATIONS FOR PEDAGOGY AND SUGGESTIONS FOR PLACEMENT AND DIAGNOSIS.

Certain theoretical guidelines were established in Section I which might form a basis, or rationale for the future design of teaching materials and approach to practical instruction of adult 'poor readers'. The potential for creative and innovative materials is enormous although there are still major gaps in knowledge about the processes involved and what will or will not work. The Researcher, while feeling in many ways inadequate to suggest solutions has included in this section some practical pedagogical suggestions based on the results of the foregoing research.

There are two specific areas in which information provided by this study can be used. The first is the formulation of teaching methods and materials specifically designed for adult non-readers and the second is in the diagnosis of reading problems and the placement of adults in appropriate learning settings.

Both are discussed below; Part 1 deals with the general pedagogical implications of the research and includes practical teaching suggestions and Part 2 deals with the possibilities for diagnosis and placement of adult students. In this section although it is realised that tutors and students can be of either sex, for simplicity the tutors are described as female and the students as male.

Part 1. Pedagogical Implications.

Several pedagogical implications of the findings of this study have already been mentioned in the course of discussion in the preceding chapter (Chapter 9) and in Section I of this chapter. For instance that:

1. Adults' reading difficulties cannot be treated as being similar to those of children.
2. Adult non-readers can be identified by their reading strategies and teaching can be directed towards enabling them to examine and modify their own learning processes.
3. Adults should not be expected to progress through a clear continuum of acqusition stages when seeking improvement in reading skills.
4. The amount of dependency exhibited by a reader is closely linked to his current maximum reading achievement.
5. The extent to which a student can be encouraged to search for meaning in text is instrumental in reading progress.
6. Graphophonemic skills should be seen as only one of a number of possible strategies involved in reading.
7. The student's conceptualisation of tasks like comprehension exercises needs to be monitored and careful explanation given so that understanding is assured.

Three main areas deserving of further discussion are:

1. the type of reading strategy which a subject is adopting, assuming that adults are capable of learning about their strategies and how to modify them,
2. the degree to which a subject is dependent upon outside assistance for his reading, and
3. the amount of attention to meaning contained in his reading approach.

The suggestions which follow could to some degree be appropriate to all with modification according to the personal attributes of students and the strategy groups which they fit most closely.

1. Reading Strategies

One of the most significant findings of this present study is the discovery of a variety of reading strategies in use by adults, which appear to be linked to inherent attitudes and concepts about reading as a process; and it is these concepts which it would appear to be important to change, if reading improvement is to take place.

Perhaps one reason for the vehemence with which the early statements about adult illiteracy were made, was connected with the widely held assumption that if a capacity was innate, rather than environmentally produced, that there remained little possibility of its being either changed or improved. It would appear that with respect to reading deficiencies these assumptions may not be true, although in some cases little improvement may be possible since an individual's general cognitive ability will limit the level of reading competence that can ultimately be achieved. That is to say, a person with limited ability might be able to make reading improvements, and although he can never achieve the flexibility, analysis and inference of some people, within the bounds of his own potential he can become an excellent reader.

The importance of the finding about strategies however, hinges on the ability of adults to make alterations to their strategies, with help, so that their learning becomes more efficient. This is something which cannot be done by young children.

One of the major tasks of adult literacy tutors could be to bring the attention of their students to bear on their own learning strategies in a way that they can understand and is useful to them. Ideas of strategy, or problem solving, are things that can be understood if presented in easily assimilable ways and the consciousness that there are possibilities for personal control of a reading situation by an individual reader might well contribute to greater autonomy in the task on the part of students with difficulties.

Perhaps the examination and understanding of their own reading activities would be a first constructive step towards the modification of those strategies on the part of the students.

There would also be a transmission of the idea that there is no single rule governed approach to the reading task, but that reading objectives can be achieved in a variety of ways suited to individual needs. The choices involved can be made only by a reader in the process of reading and this in its turn requires an independent attitude. In practical terms, it may be that for instance, 'dependent' readers could be encouraged to focus upon and discuss strategies which encourage their own dependency and think of ways in which they might be changed. Similarly, the more independent 'limited predictors' or 'decoders' might benefit from solving their problems of inflexibility, with a greater emphasis upon meaning and language in text. 'Meaning seekers' might benfit from an examination of the strategies and flexibility required when reading for a variety of different purposes and coping with texts at different levels of interest and subject matter. Here, existing reading skills would be strengthened and independence reinforced.

A teacher's role in these situations is one of support and guidance, with an emphasis upon consultation and interaction as well as instruction.

2. Dependency

One of the main divisions to appear between the groups of readers using different strategies was the degree of dependency or independence embodied in their reading. It was found in fact that non-readers divided into two clear groups on this basis and that independence together with flexibility is a prerequisite for success.

There may well be, when attempting to assist a dependent reader, a dilemma for a teacher, who might be tempted to give assistance of a kind which encourages dependency rather than independence. Students who are dependent regularly seek assistance outside themselves to avoid dealing directly with their own difficulties. There is not necessarily any clear cut solution to this, but it is important for tutors to be aware of the possibility of its happening.

This problem is familiar to counsellors and some knowledge of the techniques developed in such fields would help tutors give support without increasing dependence. A general approach would appear to be to encourage students to take more responsibility for their own learning. There needs to be a fostering of awareness of specific purposes for reading, connected in practical ways to the world outside the learning situation. In this way motivation can be heightened too.

All the dependent learners identified in this study required substantial assistance with their reading and were easily put off attempting to find their own solutions. In a discussion of strategy, dependency would be a very important topic for students experiencing difficulties of this kind, with an emphasis on how the dependency could be overcome. Tutors could also prepare materials for use with students which required as little direct assistance as possible with an emphasis upon support, rather than specific help, and set independence-fostering homework tasks.

All three of the dependent groups in this study were hampered in their progress by lack of confidence and in teaching them work on strategy and meaning would necessarily lay stress upon more independent habits, as being essential for improvement.

3. Attention to Meaning

As dependency holds people back from reading, so attention to meaning combined with a flexibility of approach, is equated with success. Attention to meaning and independence in reading appear to interact together so that it is not possible to say which begets which. A reader who attends to meaning is generally independent, using a variety of strategies with meaning as an integrative focus. If a reader is independent, then a search for meaning will ultimately become of overriding importance.

Syntactic acceptability of itself has been shown not to be a very good indicator of differences in reading ability, even given that early studies cannot be directly compared because of differences in texts used (reading primers and limited vocabulary). However, meaning and attention to meaning as

illustrated in this study by comprehension scores and by semantic acceptability to different degrees among oral reading errors is a much better indicator of these differences than attention to syntax and seems to be more closely equated with success. For anyone for whom reading embodies meaning, this would appear to be obvious yet many of the students were not paying attention to it. One assumption could be that they had not been taught (perhaps because of the obviousness) or that, having been taught, the lesson had been discarded. It is an abstract subject and difficult to pin down.

Attention to meaning can be taught at different levels and in different ways and therefore be fitted to the needs of individual strategy groups. Because of its abstract nature it needs to be embodied in tasks which achieve goals not necessarily fully understood by the students, or even overtly apparent. An examination of how meaning is regularly checked by readers, in small pieces of text (not whole passages) reveals that they are said over or subvocalised. Thus listening is important and sound, it follows, is also important. But the listening should involve not just individual words and matched reproduction, but heightened awareness of rhythms and patterns of language.

Graphic proximity, or attention to visual aspects of print has been shown to be more frequent than phonemic. It has been said that this is because phonemic proximity is a more abstract concept, in much the same way as semantic proximity in relation to syntactic. There is a possibility that the visual appearance of text is more overtly connected to graphic representation, so that the question "what does it look like?" comes more readily and is more readily answered than "what does it sound like?". This might well encourage a dependence on visual memory. Aural memory, though, the attention to sound both in speech and from the page is important for providing a checking mechanism - certainly for 'learning' people - non-fluent readers. When the check is made however, the reader must have some certainty in his own awareness of language and its reliability. The production of nonwords seems to suggest an expectation that language need not make sense, so that there is room for exploration in several areas.

Graphophonemic decoding skills are a vital element in the reading process, but there comes a point where emphasis upon them can clearly be seen to be counter-productive, even with a group say, like the 'word attackers'. Many people who seek literacy tuition have already found difficulty with the processing of graphophonemic information and it might be that emphasis upon these skills reinfores already established patterns of failure.

It is possible that by designing meaning oriented tasks and exercises fitted to each level of reading ability that some of these handicaps could be overcome.

'Daunted readers' and 'word attackers' for instance could be encouraged to approach reading more from outside the process, through oral language so that they already possess some familiarity with the content of what they are asked to read before attempting it.

People who rely heavily upon the successful use of graphophonemic skills such as the 'decoders', can eventually find them a handicap if they are dependent upon decoding and thus too text bound. The careful reproduction of every word can interfere with attention to meaning and hold back fluency. Good decoders therefore need to be guided away from using their skill as a crutch and helped to develop a more flexible approach to reading, drawing upon a variety of strategies to meet immediate needs; in particular those related to extraction of meaning.

Some practice exercises designed to aid the detection of faults in spoken language could perhaps foster an understanding of the idea that mistakes can happen and how to recognise those responses that 'don't sound right'. Reading short pieces aloud into a tape recorder might also increase awareness of error. Such methods have already been tried by individual teachers in the past - but need to be formalised and made part of a scheme of work - progressing to clearly defined objectives. There might also be place for listening and reading exercises which concentrate on linking reading (print) with language as well as information getting. What is needed is a mechanism which can monitor as the reader is going along - many of the readers here possessed

inefficient mechanisms. Exercises which encourage a moving away from word for word strategies too would be useful.

Attached to all this is a more general concept of meaningfulness in reading. The idea that reading has to be meaningful in a practical sense is important but teaching people to read for a purpose although sensible and very practical is just one part of this spectrum. Reading for a purpose is important but it concentrates very hard on the 'end product' while perhaps insufficient emphasis is placed on ideas and processes more specific to print. It also assumes motivation from the outset.

There was a great emphasis when this research was begun upon the importance of motivation and interest as a prerequisite for reading improvement, so much so that there was a strong implication that nothing else was necessary. Motivation and interest are vital but a competent reader must be flexible; possessing the ability to cope with text in a variety of different ways and settings. That some non-readers may never achieve this should not encourage educators to lose sight of the complexity of the reading process and the miracle of achievement when it is mastered to best of someone's ability. It is paternalistic and patronising to the non-reader to pretend that specific problems with text are irrelevent. Good self-concept and high motivation are essential, but not enough. Added to these must be expertise and a firm set of objectives on the part of teachers which may not be shared with students but none-the-less worked hard at. Donaldson's (1978) finding that children performed badly at ill-conceived tasks has important implications for the teaching of reading to adults here.

It is felt that in most cases attention to oral language, listening skills and practice in verbal interactions would help to improve reading and give greater confidence, as would discussions about the nature of reading and the strategies used. The goal in this instance is the establishment of individual language monitoring systems, where readers' awareness of linguistic possibilities is heightened and they are better able to predict or detect their own mistakes. Teaching materials would have to be planned to fit in with the capacities of different groups.

The difficulties of designing an effective teaching scheme such as this commercially would be immense, given the diversity of authentic reading material, both in subject matter, style and complexity. There might well be disadvantages in using any kind of uniform material with large numbers of poor readers, who are influenced by interest even in small specific tasks, not to mention the finding in this study that populations of illiterate and semi-literate adults are not homogeneous. Hitherto teachers have concentrated hard on individual preparation. Certainly published materials of this kind would need to have an immediate appeal which disguised their underlying training function.

Part 2. Placement and Diagnosis.

Placement and diagnosis of students entering literacy schemes are closely linked, since students' difficulties have to be identified on entry in order to provide them with an appropriate setting for learning.

The adults observed in this study were found to belong to six groups, as discussed earlier. It should be borne in mind however, that these groups only contained a proportion of the sample, since not all subjects appeared on the first three axes of the correspondence analysis. There may have been a possible seventh group had the analysis been pursued further and other samples of adults might contain further groups, but since in the groups on the third axis there was substantial overlap with other existing groups, it was suspected that subjects in further groups might be similar.

There was also, as mentioned, overlap between groups (see Figure 8.7) with some subjects belonging to more than one. The groups as finally described therefore are those which emerged most clearly but should be used a s a guide for placement rather than a prescription, especially on those occasions where subjects do not match group criteria exactly.

It should be borne in mind when placing students in strategy groups that they are not expected to move upwards from one group to another in progression. There might well be variations in

reading success between people in a group but all will have a similar approach to reading in common and it is on this basis that instruction can proceed.

Students are interviewed on entering literacy schemes and it is during this time that they will be alloted to suitable groups for tuition. From the information gained at an initial interview a text would be selected from which a student's oral reading could be recorded. A bank of texts would be available gathered for their appropriateness to what is generally known about the motivation and interests of intending students, and from these one or two could be chosen for use with the student.

It should be borne in mind that a student's performance in a situation like this may not be an entirely true record of his reading ability as nervousness may intrude. Situational influences like these must be taken into account when allocating students to groups and some kind of flexible arrangement be available for moving a student who is misplaced.

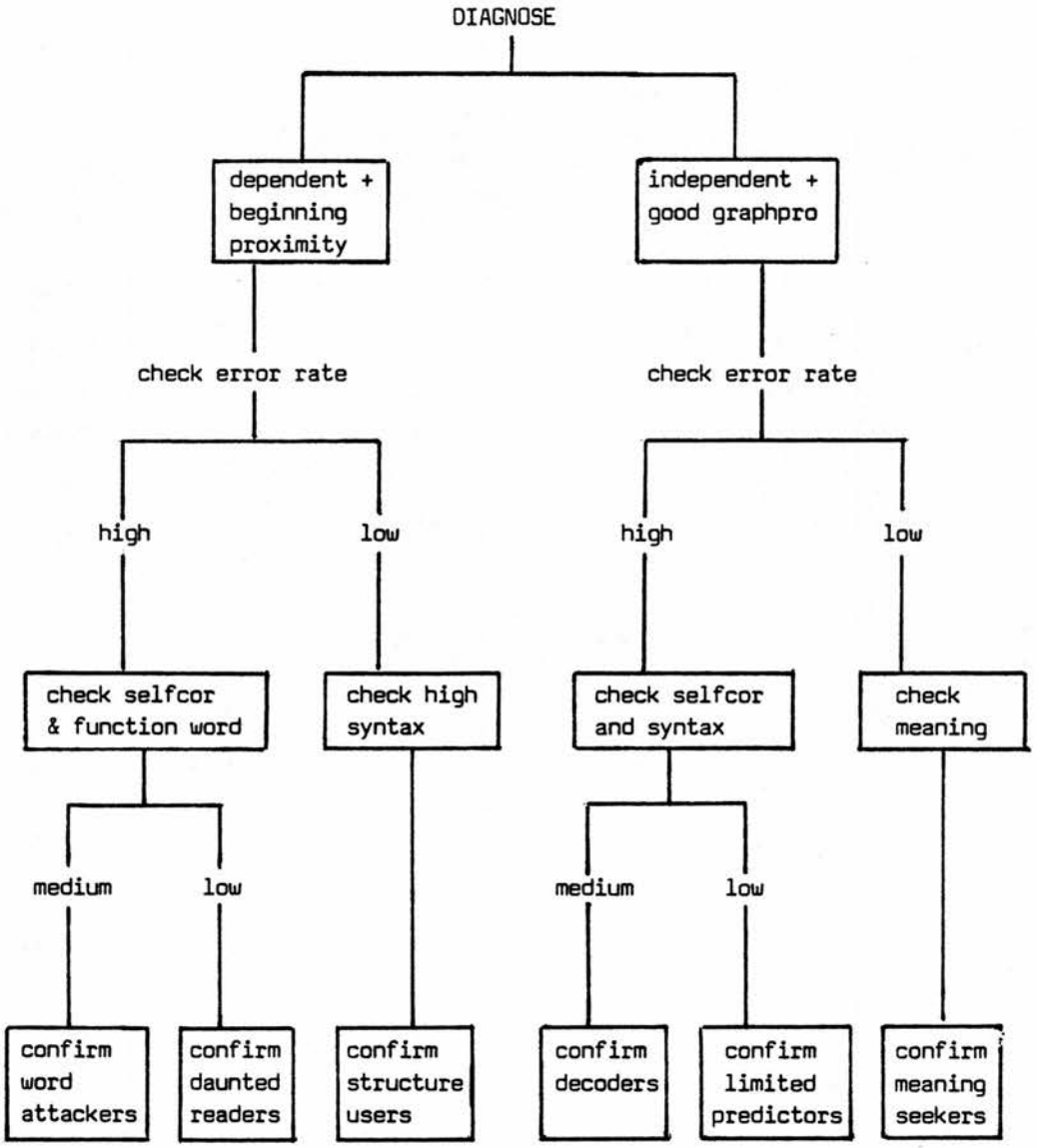
The main strategies upon which diagnosis can take place are shown in Figure 10.1 and a simple diagnostic procedure is shown here which will enable reading strategies to be identified.

If a reader is asked to attempt a short passage of text, his reading can first be checked for dependency or independence by noting the amount of assistance required and the rate of error. To decide whether a dependent reader with a high error rate and a relatively large proportion of errors with beginning proximity is either a 'word attacker' or a 'daunted reader', the amount of self-correction and the propensity for function word errors can be noted. 'Daunted readers' make few self-corrections and few function word errors when compared to 'word attackers'.

When a reader is both dependent and shows beginning-proximity errors but produces a relatively low rate of error, s/he is almost certainly a 'structure user'; which can be confirmed by making a check on the syntactic acceptability of errors.

Where a reader is independent, as shown by his not asking or requiring assistance, and exhibits competent graphophonemic skills, the error rate should be checked. The reading errors of

Figure 10.1. Procedure for diagnosing strategy groups



people with relatively high error rates should be checked for self-correction and syntactic acceptability. Where these are high, they might well be 'decoders, and low, 'limited predictors'.

If a reader is independent, competent in graphophonemic skills and has a low error rate, s/he will almost certainly be a 'meaning seeker' and this can be confirmed by a check on the semantic acceptability of errors.

It must be emphasised that tutor judgement is of the utmost importance in reading placements such as these. There may well be students who fit groups exactly, yet many will possess attributes which are less than clear-cut. In these cases, decisions about placement would be made on the basis of the closest available groupings, bearing in mind that should this research be replicated, the emergence of additional groupings should not be precluded.

SECTION III. SUMMARY AND CONCLUSIONS.

The study set out to discover more about the reading problems of adults and whether they were in any way related to those of children with a view to classifying the adults and their reading strategies. Information of this kind was almost entirely lacking when the study began and was felt to be vital as a basis for tuition and assessment of adults in this situation.

Error analysis was found to be a useful way of getting close to the reading process of the individuals concerned, and the system used, although perhaps slightly elaborate was found to be effective, yielding a very rich bank of information about the reading strategies of adult non-readers. It was possible from this data to identify six specific behaviour groups among the sample of adults and to see that none was identical to the sample of twelve-year old children observed.

Success in reading among the adults was found to be closely connected to awareness of meaning, to success in defining words and marked by independent and flexible strategies. Those with severe reading difficulties were found to be dependent on outside help, relatively unaware of meaning in text and to rely heavily upon the limited use of graphophonemic information.

Perhaps the most important conclusion is that adults in their learning and potential are very different from children. The adults observed here were no longer progressing through the developmental reading stages of childhood and it can be concluded from this that progress for them will not be through some kind of upward continuum to 'the next stage'. This was illustrated in the nature of the groups discovered here. The potential for adults to develop their reading skills lies in their ability to learn about and influence their own behaviour through their learning strategies.

From this, there appear to be two main directions to be followed. One is the direct involvement of adult literacy students in their own learning processes with carefully monitored and informed guidance and following from this, the importance of appropriately trained and well-informed tutors to provide expert tuition specifically designed for adults in an adult environment.

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APPENDICES

APPENDIX I. EXPLORATORY STUDY WITH TWO LITERACY STUDENTS.

Some time was spent in negotiations with the Organiser of the local literacy scheme for permission to observe a sample of students. The events are described in detail in Chapter 4. One of the conditions imposed by the Organiser was that the Observer should be personally involved in the Literacy Scheme in a capacity other than purely research observations. The Observer therefore spent six months from August 1976 as a volunteer helper in an already established literacy group and during this time was able to record and analyse the reading errors of two of the participating students. This study is described here because of its influence on the planning and implementation of the main study.

Group and Setting.

The literacy group in question was attended by 'slow learners' (see Chapter, 4 Section II). It had been established eighteen months earlier, before the Literacy Scheme proper came into existence, as an Adult Basic Education class. These classes were designed to provide continuing education for ex-special school pupils. The students and the tutor, an experienced teacher of the maladjusted, had been absorbed into the Literacy Scheme at its inception. For the reasons mentioned and because it met in the tutor's home rather than in local authority premises, this group was not typical of the others in the Scheme.

During this period of voluntary tuition, four students attended regularly; three men, John, Patrick and Michael and a young woman, Joan (these are not their real names). John and Patrick had both attended special schools. John was 24 years old and registered as Educationally Subnormal (ESN). Patrick was partially sighted and gave this as his reason for inadequate literacy skills rather than poor capabilities or inadequate schooling. Michael was in late middle age (50s) and a total non-reader and Joan, 22 years old, suffered from hypertension. She gave absence from school through ill-health as her reason for

failing to read and write well.

At the time of the study John and Michael were being taught using simple pre-reading and phonic identification exercises and Joan and Patrick, more advanced, read simple books with varying success. They could also cope with elementary comprehension exercises and and vocabulary work.

The Researcher's interest in reading problems was explained to the group tutor before the period of participation began and the possibility of some preliminary recorded observations, using this group was discussed. The tutor had been forwarned of such a request by the Literacy Organiser, a personal friend, and agreed to allow some recording of oral reading errors on condition that what she regarded to be sufficient time had first been spent by the Researcher in a helping capacity. She gave the impression of having been instructed to monitor progress of the group in the presence of the Researcher and to note any likely disturbance of the students' learning before giving permission for more formal observations.

The first three weeks in the group were spent in assisting the tutor. Instructions were carefully followed and no suggestions were made by the Observer about teaching or the running of the group. Assistance with the correction of homework was freely given, students' reading listened to and attempts made to establish friendly relations with them. The students reacted in different ways. Joan was nervous and trembling the first time she was helped. Patrick was sensitive about his lack of ability and often reacted sullenly or unco-operatively to offers of assistance. In contrast, Michael and John were cheerful and relaxed, both talking incessantly. John talked about current television programmes and Michael about his job as a refuse collector and his youthful travels by bicycle.

Much of the students' time during group sessions was spent on diverse practise exercises designed by the tutor herself for the strengthening of individual reading and writing skills. For the purpose of this initial study it was decided to make detailed observations of how two of the students, Joan and Patrick, dealt

with reading matter in the form of continuous prose, as an appropriate medium through which to record their ability to cope simultaneously with skills elsewhere practised in their tuition in a more isolated way.

Selection of Reading Material and Recording of Errors.

In order to fulfill the stipulations of the Literacy Organiser as closely as possible (see Chapter 4, Section I) the tutor was asked to recommend texts for each student, from the Literacy Scheme resources, that she considered to be appropriate in both level and interest. The students appeared to have no obvious interests in common so four separate texts were chosen, two for each student, to provide some variation in style and content.

All the books chosen were designed for poor readers of secondary school age. Transcripts of the books were made and during the three following sessions, the oral reading of Joan and Patrick listened to and their errors recorded. Words in the text which were read wrongly were underlined and the erroneous response written in above. This was done in twenty to thirty minute sessions for each student, the remainder of the time with the group being spent as before in assisting the tutor and socialising with the students. When sufficient data was considered to have been collected for preliminary analysis, the researcher continued to attend the group in a voluntary capacity, until eventually, after six month's participation, she was asked to replace the existing tutor, who was moving on, on a paid basis.

Analysis.

The percentage of words read erroneously in each book, was calculated. It was decided for the purpose of this preliminary study to concentrate mainly on words for which single substitutions had been made and to calculate the percentage of those which were corrected by the readers without help (self-corrections), those which were corrected with help from the observer, those which were acceptable syntactically or semantically in preceding or following contexts and those which

corresponded graphically to the beginnings of words in the text (see Tables A.1 and A.2). The number of errors was taken to be the number of words in the text which were misread or omitted, together with the total number of insertions.

Results.

Because of basic differences in the texts used it was impossible to make reliable comparisons between the recorded responses of the two observed students. It was not considered worthwhile therefore to perform a complete and systematic analysis of the errors involved. It was considered useful however, to use information from this data as a general guide to some of the difficulties experienced by literacy students and to guide the planning of the main study. The results for each student are discussed separately.

Student 1 - Joan (Table A.1).

Joan's errors reflected basic differences in the styles of each of the texts she read. One, The Cook, was written entirely in the present tense and included many passive forms and compound sentences; her rate of error for this text was higher than for the other. It Happened on Saturday (IHOS), contained much reported speech and the consequent variation of tense between what was said and the narration.

For both texts, the incidence of first letter correspondence between error and correct response was very high (more than 90%). There is a possibility that variations in tense inherent in reported speech, in IHOS, aided Joan's ability to predict. Her levels of syntactic appropriateness in this passage were consistently higher than in the other. She was able to make informed but inaccurate guesses such as -

Error: He's dead, I'm sure.

Text: He's dead. I sobbed.

Here she has avoided a change of tense.

In addition to a lower error rate in IHOS, there was also a higher rate of self-correction and a lower rate of correction with

help, than in the other passage. In spite of the changes of tense in IHOS it appeared to be easier for Joan to read than The Cook, with its present tense, her main difficulties here appearing to lie with vocabulary and subordinate clauses.

In the case of both texts the incidence of syntactic appropriateness in the context of preceding text was higher than in the context of what followed. This was attributed to the ready availability in memory of previously verbalised text, without the skill or attention to detail necessary to take a wider contextual view or to use graphic clues adequately. Joan was placing emphasis on what she had already read together with her first graphic impression of a word. Semantic appropriateness too was greater in the context of preceding rather than following text.

Her errors also appeared to have been influenced by visual sentence boundaries, capital letters and full-stops, rather than meaning. This was especially apparent in IHOS, where the tense of speech was regularly allowed to influence the tense of narrative. Another factor here was a probable lack of familiarity with the print conventions for reported speech; inverted commas and changes of tense.

The percentages of errors which were both syntactically and semantically appropriate were relatively low in both texts. The implication here is that Joan was not using implicit knowledge of language patterns to help her more accurately and that in addition, the text of The Cook did not allow sufficiently for the use of such information. Since a higher proportion of her errors to the other text (IHOS) were more accurate in a syntactic and semantic way than those to The Cook, this rate having been improved by a greater number of self-corrected errors, it would seem reasonable to suppose that the use of the present tense, not common for narrative in everyday conversational speech, hindered her more accurate prediction. In spite of variations in tense brought about by the use of reported speech, it appears that IHOS was more predictable.

The low rate of self-correction and relatively high rate of correction with help in The Cook also indicated that at least some of the time, Joan was unaware of her errors or unable to correct them alone. Her acceptance of nonsensical errors, albeit that several began in the same way as the printed word and were also either syntactically or semantically appropriate, has implications for her comprehension of this text, both in part and in full. Bearing in mind that the texts themselves could have contributed to her difficulties, her general verbal ability and her capacity generally for distinguishing between accptable and unacceptable language were brought into question.

Student 2 - Patrick (Table A.2).

Patrick's error rates were so high as to bring into question the appropriateness of the texts which had been chosen for him to read by his tutor. She admitted that Les Joins United (LJU) was too difficult although she had chosen it for use in the study after he had begun to read it in the group. The suggested The Milk Round (TMR) as being more suitable as a second text.

LJU was a narrative written in the past tense, with reported speech as part of the story; not as much as in IHOS read by Joan. It had been chosen by the tutor for its interest, since the story was about football. It was a mixture of simple and compound sentences and few, if any passives. The sentences were split rather artificially into roughly a phrase per line of print.

TMR was another narrative, written in a pseudo-colloquial style belonging to an unidentifiable area of England. It took the form of a story within a story, beginning and ending in the present tense. The main narrative was in the past. It was a mixture of simple and compound sentences and several which began with clauses of time. It was full of cliches.

The rate of correspondence between beginnings of errors and words in the text was not as high as Joan's. Patrick's sight may well have been a barrier to instant recognition of graphic clues like these.

The percentages of errors which were syntactically acceptable in preceding, following and both contexts, did not vary between texts in the way that Joan's had, even though there were differences in style. Again, the proportion of errors acceptable in the context of the preceding text, was the highest. There were however, differences in the percentages of semantically acceptable errors between the two texts. TMR had a particularly low level of semantically acceptable errors, which coupled with a low level of self correction, indicated an overall poor level of understanding of this passage.

The level of self-correction in LJU was somewhat higher than in TMR, implying perhaps that Patrick found the former a little easier to understand. This was confirmed by the difference in the percentage of errors for each text which were semantically acceptable.

Many of Patrick's errors appeared to be the result of poor use of graphic information. A great proportion were appropriate syntactically to the preceding context but lacked evidence of direct reference to the words on the page. Like Joan, he often seemed to be unaware of errors which were inappropriate both syntactically and semantically.

Conclusions Drawn From the Preliminary Analysis of Oral Reading Errors.

Although first and second letter correspondence varied between the two students, the general indications were taken to be; insufficient attention to graphic detail, resulting in inability to complete words of which the beginnings had been accurately indentified; insufficient attention to context, which together with the accurate letter recognition could have improved the chances of accurate complete responses.

The syntactic appropriateness of responses in preceding but not following contexts seems to suggest insufficient awareness of a need for attention to complete contexts in which unknown words are embedded. The errors which were appropriate in both preceding and following contexts indicate lack of awareness of graphic clues

as a means to achieving correct responses.

In sum, the indications were taken to be of an incomplete and uncoordinated approach to the reading task possibly rooted in lack of understanding of what the task itself involves. Too little attention was paid to meaning, and also whole words in preference to individual letters. In addition to the above, there was an apparent susceptability on the part of both students to variations in textual convention. The probability is that these difficulties were compounded by lack of knowledge of conventions like inverted commas and different style of verbal expression.

Considerations for the Further Analysis of Oral Reading Errors.

Several difficulties emerged during the classification of the errors during this study which pointed to the need for a series of carefully designed categories, with clear boundaries between them. For example, decisions had to be made about whether semantic acceptability could only be applied to errors which did not radically alter the sense of the text. The question also arose as to how to classify errors which were semantically and syntactically acceptable in the context of other errors but not in the context of the printed page. It was difficult also to separate syntactic appropriateness from the semantic nature of some errors.

The classification in previous research followed arbitrary guidelines but categories had tended to vary from study to study, so that choosing any one system was felt to increase the difficulty of comparing results with those already published about children. The most comprehensive system of analysis was felt to be the taxonomy devised by Goodman (1973) during the course of many studies.

Preparation of Further Material.

Using material suggested by individual tutors, as stipulated by the Literacy Organiser had introduced into the study what was potentially an extra set of variables. Using texts of this nature in the preliminary study proved to be experimentally cumbersome

and uneconomic to operate in terms of the time involved, especially in preparing transcripts. Each had to be prepared individually, since the students read from different texts. The texts themselves were of different and undefined lengths and the analysis of data from texts of such diversity was difficult.

Although the Researcher was willing, therefore, to comply with the Organiser's requests as far as possible it was felt that the analysis of data gathered in this way would be troublesome in such a way as to prevent further data being gathered and analysed effectively, especially from a larger sample of people.

It was decided therefore to select and grade suitable passages of varying difficulty and uniform style in order to gather data in a more systematic way from a wider sample. It was considered that the Organiser's 'personal interest' requirement could be satisfied while at the same time providing a single set of materials for the gathering and analysis of data about reading problems.

Subsequent Contact with Students.

During the six months that followed the gathering of the above data, until the group was handed to another tutor, no more detailed observations of reading progress were recorded. The decision not to collect further data from this group was made partly because of the concentration required by the Observer for adequate teaching and partly because the students in the group were, by and large, outside the sample specifications at that time. (Certain modifications were made to the specifications later see Chapter 4). It was possible however, to gain impressions of the general rate of progress and the temperamental and group interactions of the students and notes were kept after each session for later reference. It was on the basis of these observations that certain insights were gathered about the social nature of the intended observations which added to the realistic nature of expectations brought to encounters later with students in other groups. The slow pace and sensitivity of these subjects effectively prepared the ground for wider observations in spite of

certain of their individual characteristics not fitting in with the experimental requirement overall.

Concluding Comments.

In spite of the variations in the texts and in the individual percentages of error, the students exhibited several common characteristics which were felt to have implications for the further observation of literacy students and the choice and preparation of materials for the purpose. Attention was also drawn in this preliminary study to to certain problems associated with the categorisation and analysis of oral reading errors, and to the problems of recording data in a sometimes delicate social and personal setting.

The importance of the relationship between the Researcher and group tutor was highlighted and insights gained as to how best to handle a tutor's sensitivity at having an 'observer' present.

For the students, having notes taken about their oral reading could have awakened sensitivities about 'testing'; both had been 'tested' before. Great tact and sensitivity on the Observer's own part were required here, together with the ability to behave in a friendly and non-threatening way.

TABLE A.1. Analysis of Errors for Student Joan.

	The Cook		It Happened on Saturday	
	Number	%	Number	%
Self-corrections	10	5.8	19	18.4
Corrections with help	28	16.3	1	1.0
Errors syntactically acceptable				
a) in preceding context	110	64.0	82	79.6
b) in following context	97	56.4	66	64.1
c) in preceding and following context	91	52.9	62	60.1
Errors semantically acceptable	90	52.3	63	61.2
Both syntactically and semantically acceptable	56	32.6	44	42.7
First letter the same in error and text	166	96.5	96	93.2
First and second letters the same in error and text	139	80.0	67	65.0
Total number of errors	172		103	
Number of words read	1398		1805	
Error rate (%)	12.3		5.7	

TABLE A.2. Analysis of Errors for Student Patrick.

	Les Joins United		The Milk Round	
	Number	%	Number	%
Number of Words Read	999		559	
Errors	163	16.3	98	17.5
Self-corrections	27	16.6	10	11.1
Corrections with help	25	15.3	20	20.4
Errors syntactically acceptable				
a) in preceding context	107	65.6	64	65.3
b) in following context	82	50.3	53	54.1
c) in preceding and following context	78	46.6	53	54.1
Errors semantically acceptable	75	46.0	26	26.5
First letter the same in error and text	99	60.7	77	78.5
First and second letters the same in error and text	57	35.0	30	30.6
Total number of errors	163		98	
Number of words read	999		559	
Error rate (%)	16.3		17.5	

APPENDIX II. LETTER TO LITERACY TUTORS.

Dear

I am preparing some passages for use in literacy tuition as a teaching aid and possibly as an aid to identifying the particular difficulties of individuals, as part of my research for a PhD degree at the University of Edinburgh. I wonder if any of the students in your group would be willing to read some of them and tell me what they think? I would want to know if they found them interesting or not and about any particular parts where perhaps the language is difficult or the meaning unclear. I am not quite sure yet about how much time would be involved, but I think about three separate 45 minute sessions with each individual taking part. I asked the Literacy Organiser recently if she thought you would be willing to help me and she suggested that I write to you direct and ask you what you thought about it. If you would be willing to have a preliminary discussion with me about the possibility, I could then perhaps arrange to visit you at a convenient time to explain my plan in more detail. I would certainly be pleased to hear any suggestions you might have and perhaps together we might arrive at an acceptable arrangement.

I must add that the feelings of you and your group in this matter are my first consideration. I have no wish to impose myself on anyone who has strong objections. My intention, after a discussion with you would be to ask the people in the group themselves if they would be willing to cooperate, either by letter, if you thought that a good idea, or perhaps verbally, through you.

I do hope you will be able to spare the time to help me in this matter and look forward to hearing from you in the near future.

Yours sincerely

APPENDIX III. TUTOR QUESTIONNAIRE.

Tutors' Opinions of Student Attributes

Student's Name: Tutor's Name:

Personal Details

Name:

Age:

Marital Status:

Job:

Children:

Contact with Literacy Scheme

Length of time attending:

Regularity of attendance:

Progress:

Helped by anyone at home:

View of future progress:

Motivation:

Intelligence:

Memory:

Quality of performance: (continual/sporadic)

Quality of oral language:

Most succesful method: (phonic/sight/books/exercises etc)

Subject matter:

Source of materials:

Writing ability:

Opinion of specific difficulties:

Other comments:

Tutors commented on the slowness of progress and the difficulty of assessing it. Some students were felt by their teachers to have potential for good literacy skills but the majority felt that that ultimate progress would be small and slow. Social confidence was felt to be one of the biggest general difficulties of students and tutors could see improvement in this area.

Motivation among students was said to be good, although one ot two tutors commented that they could not see why they continued to attend. The intelligence of students was felt to be low on the whole, memory and the quality of the students' oral language, poor to average. Some of the students were ex-special school pupils.

Materials used by the tutors were a mixture of those provided by the Scheme and home produced; more than half those inteviewed said they used traditional methods.

Examples of students' specific difficulties given by tutors were: social difficulties, panic at long words, difficulty with syllabification, poor memory, inability to blend syllables, spelling long words, missing out words from sentences when writing. Little reference was made to difficulties with prediction or comprehension and little emphasis placed upon aspects of reading other than the ability to process print at a very superficial level.

Tutors Opinions of Students.

ATTRIBUTE	OPINION			TOTAL
	Poor	Good		
Attendance	1	30		31
	Poor	Average	Bright	
Intelligence	22	8	7	37
	Poor	Average	Good	
Memory	12	11	5	28
	Poor	Average	Good	
Oral Language (verbal proficiency)	9	10	6	25
	Poor	Fair	Good	
Future Progress (potential)	17	7	4	28

APPENDIX IV.

EXAMPLES OF ORAL READING PASSAGES LEVELS 1 - 4.

B2 2C

FLY FEARLESS

A class to teach people not to be afraid of flying has been set up in London. The students are told how to rest throughout take-off and landing. Doctors say that fear of flying can badly influence the work of sports stars.

B2 3B

ARGENTINA DRAW IN ROME

World champions Argentina, who play Scotland at Hampden on Saturday, followed their penalty victory against Holland with a fine 2-2 draw against Italy in Rome.

Argentina saved their unbeaten record with a spot-kick leveller after a beautiful run by Diego Maradona, their great teenage discovery.

Jock Stein is flying to Dublin tomorrow to watch the champions against Eire.

A2 4D

THE GOOD NEWS, BAD NEWS GIRL

Jo Wheelan is the girl who brings the good and bad news to Scottish travellers on certain mornings.

Her bright breezy voice tells Radio Scotland listeners just what conditions on the road are like - which roads to avoid and how ferries, airlines etc., are running, on the travel news spot.

But what is the face behind the voice like? Said small, dark-haired Jo, "People seem to expect me to be tall and blonde, and are surprised when they meet me".

APPENDIX V. COMPREHENSION QUESTIONS.

2.1. Set A, Level 2

2D A Smashing Sort of Job

Q. Where did Bert work?
A. A china factory.

Q. What is his job?
A. Bashing china.

Q. Why does he break the china?
A. Reject.

2E Dog's Life for Polly

Q. Who is Polly?
A. Parrot.

Q. What does she do?
A She barks.

Q. How did she learn?

2F Wake Up the Mushrooms

Q. What do mushrooms like?
A. The dark.

Q. Where is the darkest place?
A. In a can.

Q. Why are they waiting?

2.2 Set B Level 2

2A Yellow Snow

Q. Where did the snow fall?
A. Poland, France, Germany.

Q. What was mixed with the snow?
A. Sand.

Q. How did it get to Germany and France?
A. Strong wind.

2B Miss Big Kick

Q. Who is making a comeback?
A. Miss Superboot. Diane Morse.

Q. What side does she play for? (what sport?)
A. England ladies side.

Q. Why was she away?

2C Fly Fearless

Q. What has been set up?
A. Clinic.

Q. Which people are affected by fear of flying?
A. Sportsmen.

Q. How are the clients taught?
A. Relaxation.

2.3. Set A Level 3.

3A Be Honest and Get a Bashing.

Q. What job does Willie Evans do?
A. Shop assistant.

Q. Who left his change?
A. A customer.

Q. Why did he hit Willie?

3E Suffering From Catfish.

Q. Where did the story happen?
A. In the front room.

Q. What was on the carpet?
A. A fish.

Q. Why did Margeret yell?

3F Juiced Good.

Q. What do Gypsies use for medicine?
A. Fruit and vegetable juice.

Q. Which medicine do they use in particular?
A. Gypsy juice.

Q. How do you make it?
A. Carrots, celery, spinach - bring to boil for 10 minutes.

2.4. Set B Level 3.

3B Argentina draw at home.

Q. What was Argentina's score against Italy?
A. 2.2 draw.

Q. What is Jock Stein going to do tomorrow?
A. Fly to Dublin.

Q. How did Argentina save their record?
A. Spot kick equalizer, run by Diego.

3C Good Wheeze.

Q. What are the people in the passage learning to do?
A. Stop smoking.

Q. Where are they learning?
A. Evening class.

Q. How does Dr Avery think doctors should help?

3D Why John Doesn't Want Old Bangers.

Q. What kind of job does John do?
A. Breaks up cars.

Q. What do people leave in their cars?
A. Gas cylinders, paint thinners.

Q. How has John built his mill?
A. Like a battleship, safety doors, strongly.

2.5. Set A Level 4.

4A Top of the Mournin'.

Q. What happened to Bernard Gready?
A. Car crash.

Q. Where were the undertakers going?
A. A cremation.

Q. Why did Bernard think his end had come?

4C Good Weight to Aim At.

Q. What's one way of telling if you're overweight?
A. Insurance Co. tables, mirror.

Q. When are most of us the right weight?
A. When we get married.

Q. How can you do a test?

4D The Good News Bad News Girl.

Q. Who is Jo Wheelan?
A. Weather forecaster.

Q. What does she tell people?
A. Conditions on the road, ferries, airlines etc.

Q. Why are people surprised when they meet her?

APPENDIX VI.

BRITISH ABILITY SCALES.

SCORING

Score 1 if all digits in a sequence are recalled in correct order.

PROCEDURE

NB: *Ensure child does not see lists of digits, even upside down.*

START

Say: Get ready to listen. **When child is attending,** say: Say this after me.

Read digits in an even monotone at **half-second intervals.**

Drop voice slightly on last digit. If necessary, say: Now YOU say them.

If the child asks for a number to be repeated, **then do so, but score ZERO for the item.**

TEST A

Item	Number	Item	Number
1	44	**26**	8845517
2	23	**27**	2438224
3	54	**28**	2914139
4	92	**29**	2569874
5	75	**30**	5814726
6	866	**31**	23233626
7	242	**32**	58878446
8	564	**33**	38896152
9	756	**34**	25837461
10	483		
11	5877		
12	3238		
13	8956		
14	8495		
15	6159		
16	57667		
17	57736		
18	56964		
19	23746		
20	95247		
21	922828		
22	545457		
23	162997		
24	417432		
25	751946		

TEST B

Item	Number
1	44
2	23
6	866
7	242
11	5877
12	3238
16	57667
17	57736
21	922828
22	545457
26	8845517
27	2438224
31	23233626
32	58878446

TEST C

Item	Number
4	92
5	75
9	756
10	483
14	8495
15	6159
19	23746
20	95247
24	427432
25	751946
29	2569874
30	5814726
33	38896152
34	25837461

WORD READING

NB: *This test should be given before 'Word Definitions', particularly if Test E is used.*

MATERIALS

Card with words listed on both sides.

CALIBRATED TESTS

A. All items on front of card.
B. Items in first column on front of card.
C. Items in third column on front of card.
D. Items in fifth column on front of card.
E. Items on reverse side of card, also included in the Word Definitions Scale.

SCORING

Score 1 or 0 for each item.

PROCEDURE

START

Say: Here is a card with a lot of words. Let's see how many you can read. Read them out aloud to me.

Start at first word.

Continue, giving appropriate encouragement, until child has failed ten successive words (Test A) or five successive words (Tests B, C, D, E). Then say: They are a bit harder now, aren't they? Look at all the other words, and if you know any of them, tell me.

NB: *Apart from general encouragement such as Yes or Good, no coaching or instruction must be given.*

SCALE A

B		C		D
the	up	on	go	he
at	jump	you	box	fish
one	cup	van	if	out
said	water	bird	wood	running
window	ship	clock	men	dig
ring	gate	money	thin	light
coat	brick	oil	heel	paper
carpet	skin	knock	switch	sport
building	writing	glove	army	harvest
travel	climb	ladies	calf	leather
believe	idea	chain	lawn	collect
invite	enemy	favour	drab	guest
territory	behaviour	massive	error	beard
groceries	encounter	statue	ceiling	transparent
universal	experience	dough	tentacle	obscure
character	exert	diameter	curiosity	environment
mosquito	nomadic	velocity	lethal	divulge
chaos	emphasise	jeopardy	aborigine	criterion

SCALE E

E

sport	army	harvest	travel	leather
collect	invite	drab		
massive	error	beard	transparent	universal
tentacle	exert	curiosity	nomadic	velocity
lethal	divulge			

WORD DEFINITIONS STIMULUS WORDS AND SCORING CRITERIA

General Rules

1. Definitions similar to those under 'Dictionary Definition' and 'Acceptable Response' are acceptable.

2. Using a word correctly in context is NOT an acceptable response. If a child does this use non-directive questioning, such as Tell me more. What do you mean by .....?

3. Definitions similar to those under 'Not Acceptable' are often fairly close to the acceptable response. In such cases, use non-directive questioning to try and elicit a better definition.

NB: Items marked WR are also included in the Word Reading Scale and comprise Test F.

Item	*Word*	*Dictionary Definition*	*Acceptable Response*	*Unacceptable Response*
1 WR	**Sport**	Amusement. Diversion. Game. Outdoor pastime.	Outdoor games like football & cricket. Things you play like tennis and running.	Sports on television School sports. Games (with no examples). Snakes and ladders etc.
2 WR	**Travel**	Make a journey esp. one of some length to distant countries.	Going a long way. Going on a journey abroad. Journey. going from one place to another. Driving somewhere.	Travelling on a bus. Going out. Going on a bus, plane, etc.
3	**Splash**	Bespatter. Cause liquid to fly about in drops.	When you jump in a puddle. When you throw a stone in water. The sound of a waterfall. Water rippling. When drops of mud, etc. get on your clothes.	Water. Make a splash.
4 WR	**Army**	Organised body of men armed for war.	*NB: Child must show awareness of use of army for fighting.* A group of men used for fighting. Soldiers. They wear uniforms and have guns.	In the war. A lot of men. Men who are trained and disciplined. An organization where they wear uniform. Dad's army. Salvation army.

Item	*Word*	*Dictionary Definition*	*Acceptable Response*	*Unacceptable Response*
5 WR	**Beard**	Hair on lower face (excluding usually the moustache).	Hair on you face. Whiskers that grow round your chin. Long and brown stuff on your chin.	Hair. Whiskers. Grows on your face.
6 WR	**Invite**	Request courteously to come.	Ask someone round to your house. When someone asks you to a party. Ask someone to do something.	Invite to a party. Letter.
7 WR	**Harvest**	Season for reaping & gathering in of grain.	Cutting the corn. Bringing in the hay. Gathering the crops.	Sowing seed. Have it in Church. Growing crops.
8	**Lullaby**	Soothing refrain or song to put child to sleep.	Song that makes you go to sleep. Music to make the baby sleep. Quiet, gentle song.	Song. Music. Quiet music. When you're asleep.
9 WR	**Collect**	Assemble. Accumulate. Bring or come together. Short prayer.	Bring together. Fetch from school. Keep lots of similar things.	Pick things up. Collect from school.
10	**Wheel**	Circular frame or disc arranged to revolve on axis.	Round thing that turns. It's round and rolls so that things can move.	You have them on cars. It turns round. Round.
11 WR	**Massive**	Large and heavy. Solid.	Very big. Enormous. Huge. Gigantic.	Big. Strong.
12	**Refund**	Reimburse	Give back money. Pay back. Get money back.	Give something back. Pay money. Get money.
13	**Purpose**	Object or thing intended.	Doing something you mean to. When you do it for a reason. Deliberate.	When you do it on purpose.
14	**Trade**	Business or employment. Buying and selling.	When you buy and sell things. When you exchange goods. Business. Like my Dad's job, he's a plumber.	Going to the shops. It's a job. Skilled job like a doctor.
15 WR	**Curiosity**	Desire to know. Inquisitiveness.	When you want to know about something/ to find out more about things. Something interesting.	Ask. Funny.

Item	*Word*	*Dictionary Definition*	*Acceptable Response*	*Unacceptable Response*
16 WR	**Transparent**	Transmitting rays of light without diffusion	You see through it. It's clear like glass. Something that's obvious.	A window. Shuts out the light. Light gets through it.
17 WR	**Leather**	Skin prepared for use by tanning or similar process.	Animal hide or skin. Comes from animals. Pigskin.	Handbags. Shoes. Materials. Like fur.
18 WR	**Error**	Wrong opinion. Mistake.	When you get it wrong.	When you make an error.
19	**Victorious**	Conquering. Triumphant.	Winning. Win a victory.	You're the victor. I am victorious.
20 WR	**Tentacle**	Long, slender, flexible appendage of animal.	Feeler. Sort of an octopus arm. Like a long arm or leg with no hand or foot.	Leg. Arm. Sticks to things.
21	**Consent**	Acquiesce.	Agree. Give permission. Give them the go-ahead. Say you can do something	You have to have it when you get married. When your Mum says 'Yes'.
22	**Counterfeit**	Made in imitation. Not genuine.	Forged money. Sign someone else's name so it looks real. Make money or stamps that people will think are real.	Not real money. Counterfeit a signature.
23	**Unique**	Unmatched. Unequalled. Having no parallel.	Only one of its kind. No other one like it. Only one in the world.	One on its own. One thing. A unique object. Different. Unusual.
24 WR	**Drab**	Dull, monotonous. Of dull, light-brown colour. Slut, prostitute.	Dingy, Dreary. Dismal. Old and shabby. Naughty lady.	Plain. Unexciting. Light brown.
25 WR	**Nomadic**	Roaming from place to place for pasture.	Always on the move. People with no regular place to live. Travelling. Wandering. Roaming.	Like a Nomad. Nomadic tribes. Like a bedouin. Hermit.
26 WR	**Universal**	Or of belonging to all persons or all things in the world.	Worldwide. Something to do with all the world. Concerning everything/ everybody.	General. In this universe. Widespread. When there are a lot of them.
27 WR	**Lethal**	Causing or sufficient to cause death.	Deadly. Causes you to die. Very poisonous so that you will die.	Poisonous. Something that makes you very ill. Dangerous.

Item	*Word*	*Dictionary Definition*	*Acceptable Response*	*Unacceptable Response*
28	**Pessimistic**	Always looking at the worst aspect of things.	Think nothing will work out right. Never look on the bright side. Look on the dark side.	Miserable. Always think the best of everything.
29	**Adjacent**	Lying near or contiguous.	Next to. Adjoining. In the neighbourhood. Sitting next to.	Far away. School is adjacent to home.
30 WR	**Exert** *(NB ensure child has not understood as 'excerpt'.)*	Exercise. Bring to bear force or influence.	Try hard. Apply pressure. Use a lot of energy. Force.	Do well. Go for a run. Exert yourself.
31	**Novice**	Person received in religious house on probation before taking vows. Beginner, inexperienced person.	Apprentice. New nun.	Nun. Young. Practice.
32 WR	**Velocity**	Rate of motion. Speed.	Quickness. Going fast.	Measurement, like the wind.
33 WR	**Divulge**	Let out or reveal	Tell about. Betray. Tell a secret. Give away facts or information.	Divulge a secret. Give away.
34	**Longevity**	Long life.	When you live to an old age. Length of life. Long-living.	Old age Longness.
35	**Ostracise**	Exclude from society. Banish.	When you don't talk to people. Leave people alone. Send to Coventry. Ignore.	Leave well alone. Ignore. Banish spirits.
36	**Alacrity**	Briskness and cheerful readiness.	Speed. Eagerness.	Run with alacrity. hurry up.
37	**Hirsute**	Hairy. Shaggy. Untrimmed.	Someone with hair all over them. When you've got hair like an ape.	Monkey. Long hair. Hairstyle.

APPENDIX VII

TABLES 5.1 - 5.20. CHAPTERS 5 and 6.

ERROR ANALYSIS

TABLE 5.1. Relative frequency of general error types as a percentage of the total number of errors made by adults and children.

ERROR TYPE	FREQUENCY (%)	
	Adults	Children
Single Substitution	65.6	66.2
Compound substitution	14.0	16.0
Repeated substitution	1.1	0.9
Single word multiple	0.8	1.0
Compound multiple	0.3	0.3
Repeated multiple	0.0	0.2
Single word insertion	3.0	1.6
Compound insertion	0.5	0.2
Single word omission	2.6	1.9
Compound omission	0.8	3.6
Repeated omission	0.1	0.0
No response	7.1	2.8
Punctuation	0.4	1.3
Compound punctuation	0.5	0.8
Single word try	3.0	3.1
Compound try	0.1	0.1
Total Number of Errors	1828	1181

TABLE 5.1 (a). Frequency of different grammatical functions (parts of speech) of items of text for which erroneous responses were made, as a percentage of the total errors in general error categories: Adults (A) and Children (C).

ERROR TYPE	GRAMMATICAL FUNCTION FREQUENCY(%)												Total (100%)	
	Noun Category		Verb Category		Noun Modifier		Verb Modifier		Function Word		Other			
	A	C	A	C	A	C	A	C	A	C	A	C	A	C
Single substitution	43.3	48.5	19.7	16.0	19.6	20.1	2.5	2.8	13.1	10.5	1.8	2.2	1199	782
Compound substitution	39.5	45.0	18.0	11.6	16.8	21.2	0.8	1.6	24.2	20.1	0.8	0.5	256	189
Repeated substitution	45.0	81.8	10.0	0.0	25.0	0.0	0.0	0.0	20.0	18.2	0.0	0.0	20	11
Single word multiple	53.3	58.3	20.0	16.7	0.0	8.3	0.0	0.0	20.0	0.0	6.7	16.7	15	12
Compound multiple	33.3	0.0	50.0	25.0	16.7	0.0	0.0	0.0	0.0	50.0	0.0	25.0	6	4
Repeated multiple	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	2
Single word insertion	40.7	31.6	13.0	0.0	16.7	36.8	1.5	0.0	25.9	31.6	1.9	0.0	54	19
Compound insertion	20.0	0.0	20.0	0.0	10.0	50.0	0.0	50.0	40.0	0.0	10.0	0.0	10	2
Single word omission	14.6	22.7	2.1	4.5	12.5	13.6	0.0	0.0	70.8	54.5	0.0	0.0	48	22
Compound omission	13.3	26.2	13.3	9.5	20.0	16.7	0.0	0.0	53.3	45.2	0.0	2.4	15	42
Repeated omission	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	2	0
No response	64.3	63.6	9.3	9.1	13.2	15.2	3.9	6.1	5.4	6.1	0.8	0.0	129	33
Punctuation	0.0	0.0	12.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	87.5	100.0	8	15
Compound punctuation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	100.0	9	10
Single word try	52.7	54.1	14.5	18.9	16.4	18.9	10.9	5.4	3.6	2.7	1.8	0.0	55	37
Compound try	0.0	0.0	50.0	0.0	0.0	100.0	0.0	0.0	50.0	0.0	0.0	0.0	2	1
													1828	1181

TABLE 5.1 (b). Relative frequency of nonwords, recognisable words and others as a percentage of the total errors in general error categories: Adults (A) and Children (C).

ERROR TYPE	FREQUENCY (%)						Total (100%)	
	Recognisable word		Nonword		N/A (other)			
	A	C	A	C	A	C	A	C
Single substitution	79.1	60.2	18.1	38.7	2.8	1.0	1199	782
Compound substitution	89.8	72.5	7.0	27.0	3.1	0.5	256	189
Repeated substitution	80.0	36.4	20.0	63.6	0.0	0.0	20	11
Single word multiple	100.0	91.7	0.0	8.3	0.0	0.0	15	12
Compound multiple	83.3	100.0	16.7	0.0	0.0	0.0	6	4
Single word insertion	96.3	100.0	0.0	0.0	3.7	0.0	54	2
Compound insertion	100.0	100.0	0.0	0.0	0.0	0.0	10	19
Single word omission	4.2	100.0	2.1	0.0	93.7	0.0	48	2
Compound omission	6.7	0.0	0.0	0.0	93.3	100.0	15	22
Repeated omission	0.0	0.0	0.0	0.0	100.0	100.0	2	42
Single word non-response	0.0	0.0	0.0	0.0	100.0	100.0	129	33
Punctuation	0.0	0.0	0.0	0.0	100.0	100.0	8	15
Compound punctuation	11.1	0.0	0.0	0.0	88.9	100.0	9	10
Single word try	30.9	18.9	5.5	10.8	63.6	70.3	55	37
Compound try	100.0	0.0	0.0	100.0	0.0	0.0	2	1
							1828	1181

TABLE 5.1 (c). Relative frequency of levels of syntactic acceptability as a percentage of the total errors in general error categories: Adults (A) and Children (C).

ERROR TYPE	LEVEL OF ACCEPTABILITY FREQUENCY(%)															
	Unacceptable		Less than a sentence		Preceding context		Following context		Whole sentence		Whole passage		Other (N/A)		Total (100%)	
	A	C	A	C	A	C	A	C	A	C	A	C	A	C	A	C
Single substitution	15.4	13.6	4.9	5.2	14.7	13.6	13.0	15.0	19.8	19.2	31.9	29.8	0.1	3.5	1199	782
Compound substitution	21.1	32.8	9.8	4.8	16.0	12.7	19.1	10.6	16.4	14.3	17.6	14.8	0.0	2.6	256	182
Repeated substitution	10.0	9.1	0.0	0.0	5.0	0.0	25.0	18.2	15.0	27.3	45.0	45.5	0.0	0.0	20	11
Single word multiple	20.0	16.7	13.3	8.3	20.0	16.6	6.7	8.3	20.0	41.7	20.0	8.3	0.0	0.0	15	12
Compound multiple	16.7	25.0	0.0	0.0	33.4	0.0	0.0	75.0	16.7	0.0	33.3	0.0	0.0	0.0	6	4
Repeated multiple	0.0	50.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	50.0	0.0	0.0	0.0	0.0	0	2
Single word insertion	3.7	0.0	3.7	5.3	22.3	26.3	7.5	15.9	22.2	36.8	40.7	15.0	0.0	0.0	54	19
Compound insertion	20.0	50.0	0.0	0.0	20.0	0.0	20.0	0.0	10.0	50.0	30.0	0.0	0.0	0.0	10	2
Single word omission	33.3	50.0	2.1	0.0	10.4	4.5	18.7	27.1	16.7	9.1	14.6	9.1	4.2	0.0	48	22
Compound omission	20.0	73.8	0.0	0.0	6.7	0.0	0.0	0.0	40.0	0.0	33.3	19.0	0.0	0.0	15	42
Repeated omission	0.0	0.0	0.0	0.0	50.0	0.0	0.0	0.0	50.0	0.0	0.0	0.0	0.0	0.0	2	0
No response	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	100.0	129	33
Punctuation	62.5	53.3	0.0	6.7	0.0	0.0	0.0	6.7	0.0	0.0	0.0	20.0	37.5	13.3	8	15
Compound punctuation	11.1	20.0	22.2	0.0	22.2	10.0	11.1	10.0	11.1	30.0	11.1	30.0	11.1	0.0	9	10
Single word try	18.2	18.9	1.8	0.0	7.3	0.0	9.1	8.1	5.5	0.0	1.8	2.7	36.4	0.0	55	37
Compound try	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	2	1
															1828	1181

TABLE 5.1 (e). Relative frequency of levels of simultaneous syntactic and semantic acceptability as a percentage of the total errors in general error categories: Adults (A) and Children (C).

ERROR TYPE	LEVEL OF ACCEPTABILITY FREQUENCY (%)													
	Unacceptable		Preceding context		Following context		Whole sentence		Whole passage		Other (N/A)		Total (100%)	
	A	C	A	C	A	C	A	C	A	C	A	C	A	C
Single substitution	15.4	13.6	17.9	15.0	11.7	10.7	14.4	8.6	7.5	4.7	33.1	47.4	1199	782
Compound substitution	48.2	32.8	20.3	10.6	14.1	7.9	11.3	1.6	3.9	2.6	2.2	44.2	256	189
Repeated substitution	10.0	9.1	15.0	0.0	25.0	18.1	25.0	18.2	15.0	0.0	10.0	54.6	20	11
Single word multiple	20.0	16.7	26.6	16.6	0.0	16.6	20.0	25.0	13.3	0.0	20.1	25.1	15	12
Compound multiple	16.7	25.0	1.6	0.0	0.0	25.0	16.7	0.0	16.7	0.0	48.3	50.0	6	4
Repeated multiple	0.0	50.0	0.0	50.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0	2
Single word insertion	3.7	0.0	11.1	26.3	7.4	10.5	20.4	36.8	35.2	10.5	22.2	15.9	54	19
Compound insertion	20.0	50.0	30.0	0.0	10.0	0.0	20.0	50.0	10.0	0.0	10.0	0.0	10	2
Single word omission	33.3	50.0	10.4	0.0	22.9	18.2	16.7	13.6	10.4	0.0	6.3	18.2	48	22
Compound omission	20.0	73.8	6.6	7.1	13.3	0.0	26.7	0.0	6.7	0.0	26.7	19.1	15	42
Repeated omission	0.0	0.0	50.0	0.0	0.0	0.0	50.0	0.0	0.0	0.0	0.0	0.0	2	0
No response	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	100.0	129	33
Punctuation	62.5	46.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20.0	37.5	33.3	8	15
Compound punctuation	11.1	20.0	22.2	30.0	11.1	10.0	22.2	0.0	0.0	20.0	33.4	20.0	9	10
Single word try	18.2	18.9	5.5	0.0	5.5	5.4	1.8	0.0	0.0	0.0	69.0	75.7	55	37
Compound try	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	2	1
													1828	1181

TABLE 5.1 (f). Relative frequency of self-corrected errors and observer intervention as a percentage of the total errors in general error categories: Adults (A) and Children (C).

ERROR TYPE	FREQUENCY (%)								Total (100%)	
	No correction/ intervention		Self-correction		Observer intervention		Other			
	A	C	A	C	A	C	A	C	A	C
Single substitution	65.1	84.7	16.8	10.1	14.2	2.8	3.9	2.4	1199	782
Compound substitution	75.4	94.7	16.4	3.7	6.6	1.1	1.6	0.5	256	189
Repeated substitution	90.0	90.9	5.0	9.1	0.0	0.0	5.0	0.0	20	11
Single word multiple	86.7	91.7	0.0	8.3	6.7	0.0	6.6	0.0	15	12
Compound multiple	100.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	6	4
Repeated multiple	0.0	50.0	0.0	0.0	0.0	0.0	0.0	50.0	0	2
Single word insertion	88.9	94.7	11.1	5.3	0.0	0.0	0.0	0.0	54	19
Compound insertion	70.0	100.0	30.0	0.0	0.0	0.0	0.0	0.0	10	2
Single word omission	83.3	81.8	12.5	18.2	4.2	0.0	0.0	0.0	48	22
Compound omission	40.0	78.6	60.0	0.0	0.0	21.4	0.0	0.0	15	42
Repeated omission	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2	0
Single word non-response	0.0	0.0	0.0	0.0	100.0	100.0	0.0	0.0	129	33
Punctuation	100.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	8	15
Compound punctuation	100.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	9	10
Single word try	43.6	40.5	10.9	29.7	45.5	24.3	0.0	5.5	55	37
Compound try	100.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	2	1
									1828	1181

TABLE 5.2. Relative frequency of different grammatical functions (parts of speech) of each item of text for which erroneous responses were made, as a percentage of the total number of errors made: Adults and Children.

GRAMMATICAL FUNCTION	FREQUENCY (%)		PERCENT OF TEXT
	Adults	Children	
Noun category	42.9	46.1	30.5
Verb category	17.7	14.0	13.8
Noun modifier	18.0	19.4	12.1
Verb modifier	2.4	2.5	2.1
Function word	16.3	13.9	35.5
Other	2.7	4.0	6.0
Total number of errors made	1828	1181	

TABLE 5.2 (a). Frequency of errors in general error categories as a percentage of different grammatical functions (parts of speech) of items of text for which erroneous responses were made: Adults (A) and Children (C).

ERROR TYPE	FREQUENCY (%) GRAMMATICAL FUNCTION											
	Noun category		Verb category		Noun modifier		Verb modifier		Function word		Other	
	A	C	A	C	A	C	A	C	A	C	A	C
Single Substitution	66.2	69.5	72.8	75.8	71.4	68.6	68.2	73.3	52.7	50.0	44.9	35.4
Compound substitution	12.9	15.6	14.2	13.3	13.1	17.5	4.5	10.0	20.8	23.2	4.1	2.1
Repeated substitution	1.1	1.7	0.6	0.0	1.5	0.0	0.0	0.0	1.3	1.2	0.0	0.0
Single word multiple	1.0	1.3	0.9	1.2	0.0	0.4	0.0	0.0	1.0	0.0	2.0	4.5
Compound multiple	0.3	0.0	0.9	0.6	0.3	0.0	0.0	0.0	0.0	1.2	0.0	2.1
Repeated multiple	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Single word insertion	2.8	1.1	2.2	0.0	2.7	3.1	2.3	0.0	4.7	3.7	2.0	0.0
Compound insertion	0.3	0.0	0.6	0.0	0.3	0.4	0.0	3.3	1.3	0.0	2.0	0.0
Single word omission	0.9	0.9	0.3	0.6	1.8	1.3	0.0	0.0	11.4	7.3	0.0	2.1
Compound omission	0.3	2.0	0.6	2.4	0.9	3.1	0.0	0.0	2.7	11.6	0.0	2.1
Repeated omission	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.0	0.0	0.0
No response	10.6	3.9	3.7	1.8	5.2	2.2	11.4	6.7	2.3	1.2	10.2	0.0
Punctuation	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	14.3	31.3
Compound punctuation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	18.4	20.8
Single word try	3.7	3.7	2.5	4.2	2.7	3.1	13.6	6.7	0.7	0.6	2.0	0.0
Compound try	0.0	0.0	0.3	0.0	0.0	0.4	0.0	0.0	0.3	0.0	0.0	0.0
Total (100%)	784	545	324	165	329	229	44	30	298	164	49	48

TABLE 5.2 (b). Relative frequency of recognisable words, nonwords and others as a percentage of the total number of different grammatical functions (parts of speech) in texts for which erroneous responses were made: Adults (A) and Children (C).

GRAMMATICAL FUNCTION	FREQUENCY (%)						Total (100%)	
	Recognisable word		Nonword		N/A (other)			
	A	C	A	C	A	C	A	C
Noun category	63.3	47.0	17.5	43.3	19.3	9.7	784	545
Verb category	84.0	67.3	9.6	24.2	6.5	8.5	324	165
Noun modifier	73.6	60.7	16.7	29.7	9.7	9.6	329	229
Verb modifier	61.4	43.3	20.5	46.7	18.2	10.0	44	30
Function word	79.9	74.4	3.7	4.9	16.4	20.7	298	164
Other	51.0	33.3	2.0	4.2	47.0	62.5	49	48
							1828	1181

TABLE 5.2 (c). Relative frequency of levels of syntactic acceptability as a percentage of the total number of different grammatical functions (parts of speech) in texts for which erroneous responses were made: Adults (A) and Children (C)

LEVEL OF ACCEPTABILITY	FREQUENCY (%)											
	GRAMMATICAL FUNCTION											
	Noun category		Verb category		Noun modifier		Verb modifier		Function word		Other	
	A	C	A	C	A	C	A	C	A	C	A	C
Unacceptable	12.2	14.5	19.1	20.0	14.9	19.2	29.3	26.7	17.8	29.3	22.4	43.8
Clause or more	1.5	1.8	0.0	0.0	0.9	0.9	0.0	0.0	1.0	0.0	6.1	0.0
Phrase or more	3.3	2.0	0.9	0.6	1.2	1.7	0.0	0.0	2.0	0.0	0.0	0.0
Surrounding words	1.5	1.3	1.2	3.6	2.1	2.2	6.8	0.0	2.0	3.7	0.0	2.1
Preceding context	6.3	5.5	16.0	9.1	19.8	19.2	11.4	0.0	25.2	31.1	8.2	8.3
Following context	11.6	15.6	17.6	18.8	10.0	10.5	11.4	10.0	14.4	14.6	12.2	10.4
Whole sentence	19.1	19.6	16.7	17.0	16.4	15.7	11.4	10.0	16.1	10.4	16.3	16.7
Whole passage	31.1	31.0	23.8	22.4	27.7	20.5	13.6	36.7	18.5	9.8	16.3	14.6
Non applicable	13.3	8.6	4.6	8.5	7.0	10.0	15.9	16.7	11.4	1.2	18.4	4.2
Total (100%)	784	545	324	165	329	229	44	30	298	164	49	48

TABLE 5.2 (d). Relative frequency of levels of semantic acceptability as a percentage of the total number of different grammatical functions (parts of speech) in texts for which erroneous responses were made: Adults (A) and Children (C)

LEVEL OF ACCEPTABILITY	FREQUENCY (%)											
	GRAMMATICAL FUNCTION											
	Noun category		Verb category		Noun modifier		Verb modifier		Function word		Other	
	A	C	A	C	A	C	A	C	A	C	A	C
Unacceptable	41.3	61.7	38.0	52.1	39.5	57.2	47.7	76.7	25.2	43.3	40.8	50.0
Clause or more	1.3	0.2	0.3	1.2	1.2	2.6	0.0	0.0	1.7	1.2	6.1	2.1
Phrase or more	1.7	1.7	0.9	1.2	1.5	2.2	0.0	0.0	1.0	0.6	0.0	0.0
Surrounding words	1.8	1.3	2.8	4.2	2.1	2.2	4.5	0.0	2.7	4.3	0.0	2.1
Preceding context	8.8	6.1	24.4	18.2	20.1	14.4	11.4	3.3	27.2	29.9	8.2	12.5
Following context	8.5	9.9	15.4	10.9	9.4	7.0	9.1	3.3	17.1	13.4	10.2	8.3
Whole sentence	15.1	8.3	9.0	4.2	10.9	7.9	9.1	6.7	15.1	4.9	16.3	12.5
Whole passage	8.4	5.5	4.6	4.2	8.5	2.2	2.3	0.0	7.0	1.2	2.0	10.4
Non applicable	13.1	5.5	4.6	3.6	6.7	4.4	15.9	10.0	3.0	1.2	12.2	2.1
Total (100%)	784	545	324	165	329	229	44	30	298	164	49	48

TABLE 5.2 (e). Relative frequency of degrees of graphic proximity as a percentage of the total number of different grammatical functions (parts of speech) in texts for which erroneous responses were made: Adults (A) and Children (C)

DEGREE OF PROXIMITY	FREQUENCY (%) GRAMMATICAL FUNCTION											
	Noun category		Verb category		Noun category		Verb modifier		Function word		Other	
	A	C	A	C	A	C	A	C	A	C	A	C
No proximity	1.0	0.0	0.9	1.8	0.9	0.9	0.0	0.0	19.5	22.6	0.0	0.0
Key letter or letters	2.0	1.5	3.4	3.0	4.0	3.1	9.1	0.0	13.8	10.4	2.0	0.0
Middle portions	1.3	1.3	1.9	0.6	0.3	1.3	0.0	0.0	0.3	1.2	0.0	4.2
End portions	1.5	2.0	2.5	2.4	0.9	1.7	0.0	6.7	3.0	3.7	2.0	0.0
Beginning portions	14.8	12.1	16.4	17.0	18.5	12.2	25.0	6.7	11.4	14.6	12.2	6.3
Beginning and middle portions	17.0	14.7	17.3	19.4	19.8	17.9	20.5	20.0	8.1	3.7	8.2	12.5
Beginning and end portions	16.2	20.2	19.1	13.3	14.9	14.0	15.9	23.3	3.7	0.6	10.2	4.2.
Beginning, middle and end portions	4.5	6.4	3.4	5.5	3.3	4.0	4.5	20.0	0.3	0.6	6.1	0.0
Single grapheme difference	24.2	29.2	21.6	24.8	23.1	30.1	11.4	13.3	15.1	17.1	10.2	4.2
Homograph	0.6	1.7	0.3	0.0	0.0	0.9	0.0	0.0	0.0	0.0	0.0	0.0
Textual item + extra	1.0	1.5	3.4	4.8	3.0	2.2	0.0	0.0	1.0	0.6	0.0	0.0
Other	15.8	9.5	9.9	7.3	11.2	11.4	13.6	10.0	23.8	25.0	49.0	69.0
Total (100%)	784	545	324	165	329	229	44	30	298	164	49	48

TABLE 5.2 (f). Relative frequency of degrees of phonemic proximity as a percentage of the total number of different grammatical functions (parts of speech) in texts for which erroneous responses were made: Adults (A) and Children (C)

DEGREE OF PROXIMITY	FREQUENCY (%) GRAMMATICAL FUNCTION											
	Noun category		Verb category		Noun modifier		Verb modifier		Function word		Other	
	A	C	A	C	A	C	A	C	A	C	A	C
No proximity	2.7	1.7	4.0	2.4	5.8	5.2	2.3	3.3	23.2	29.9	0.0	0.0
Key sound or sounds	2.6	2.6	1.5	2.4	2.1	1.3	4.5	0.0	7.4	9.1	2.0	4.2
Middle portions	1.1	1.5	1.5	1.2	0.6	0.9	0.0	0.0	0.0	1.2	0.0	0.0
End portions	4.2	8.1	3.7	3.0	2.1	3.9	4.5	3.3	3.7	3.7	4.1	0.0
Beginning portions	16.2	13.9	17.3	19.4	21.6	15.7	31.8	6.7	13.1	9.8	12.2	10.4
Beginning and middle portions	12.1	9.2	13.6	12.1	14.0	11.8	18.2	20.0	2.7	1.8	2.0	6.3
Beginning and end portions	15.3	19.1	19.1	12.1	13.1	14.4	13.6	26.7	4.4	1.2	8.2	4.2
Beginning, middle and end portions	3.1	4.4	1.5	3.0	2.7	2.2	2.3	16.7	0.0	0.0	4.1	0.0
Single phoneme difference	25.0	28.1	25.6	33.3	23.1	30.1	9.1	13.3	20.5	17.1	18.4	6.3
Homophone	0.0	0.0	0.0	0.6	0.0	0.0	0.0	0.0	0.0	0.6	0.0	0.0
Textual item + extra	1.9	2.0	1.9	3.0	3.6	3.1	0.0	0.0	1.0	0.6	0.0	0.0
Other (N/A)	15.8	9.5	10.2	7.3	11.2	11.4	13.6	10.0	13.6	25.0	49.0	69.0
Total (100%)	784	545	324	165	329	229	44	30	298	164	49	48

TABLE 5.2 (g). Relative frequency of self-corrected errors and/or observer intervention as a percentage of the total number of different grammatical functions (parts of speech) in texts, for which erroneous responses were made: Adults (A) and Children (C).

ERROR TYPE	FREQUENCY (%)											
	GRAMMATICAL FUNCTION											
	Noun Category		Verb Category		Noun Modifier		Verb Modifier		Function Word		Other	
	A	C	A	C	A	C	A	C	A	C	A	C
No correction	61.6	81.5	62.0	84.8	61.1	82.5	54.5	80.0	70.8	82.9	75.5	95.8
Self-correction	12.1	7.9	19.1	7.9	13.4	10.5	6.8	0.0	22.5	14.1	2.0	4.2
Observer intervention	23.8	8.5	14.8	4.2	22.5	5.7	36.3	16.7	4.1	3.0	14.3	0.0
Other	2.5	2.1	4.1	3.1	3.0	1.3	2.4	3.3	2.6	0.1	8.2	0.0
Total (100%)	784	545	324	165	329	229	44	30	298	164	49	48

TABLE 5.3. Relative frequency of nonword, recognisable word and other errors made by adults and children, as a percentage of the total number of errors made.

ERROR TYPE	FREQUENCY OF OCCURRENCE (%)	
	Adults	Children
Nonword	13.3	31.2
Recognisable word	71.1	55.6
Other	15.5	13.2
Total number of Errors	1828	1181

TABLE 5.3 (a). Relative frequency of general error types as a percentage of the total number of recognisable words, nonwords and other errors: Adults (A) and Children (C).

ERROR TYPE	FREQUENCY (%)					
	Recognisable word		Nonword		N/A (Other)	
	A	C	A	C	A	C
Single substitution	73.0	71.7	88.9	82.3	11.6	5.1
Compound substitution	17.7	20.9	7.4	13.9	2.8	0.6
Repeated substitution	1.2	0.6	1.6	1.9	0.0	0.0
Single word multiple	1.2	1.7	0.0	0.3	0.0	0.0
Compound multiple	0.4	0.6	0.4	0.0	0.0	0.0
Single word insertion	4.0	0.3	0.0	0.0	0.7	0.0
Compound insertion	0.8	2.9	0.0	0.0	0.0	0.0
Single word omission	0.2	0.3	0.4	0.0	15.8	0.0
Compound omission	0.1	0.0	0.0	0.0	4.9	14.1
Repeated omission	0.0	0.0	0.0	0.0	0.7	26.9
Single word non-response	0.0	0.0	0.0	0.0	45.4	21.2
Punctuation	0.0	0.0	0.0	0.0	2.8	9.3
Compound punctuation	0.1	0.0	0.0	0.0	2.8	6.4
Single word try	1.3	1.1	1.2	1.1	12.3	16.7
Compound try	0.2	0.0	0.0	0.3	0.0	0.0
Total number	1300	657	244	368	284	156

TABLE 5.3 (b). Relative frequency of different grammatical functions (parts of speech) of items of text for which erroneous responses were made, as a percentage of the total number of recognisable words, nonwords and other errors: Adults (A) and Children (C).

GRAMMATICAL FUNCTION	FREQUENCY(%)					
	Recognisable word		Nonword		N/A (other)	
	A	C	A	C	A	C
Noun category	38.2	39.0	56.1	64.1	53.2	34.0
Verb category	20.9	16.9	12.7	10.9	7.4	9.0
Noun modifier	18.6	21.2	22.5	18.5	11.3	14.1
Verb modifier	2.1	2.0	3.7	3.8	2.8	1.9
Function word	18.3	18.6	4.5	2.2	17.3	21.8
Other	1.9	2.4	0.0	0.5	8.1	19.2
Total number	1300	657	244	368	284	156

TABLE 5.3 (c). Relative frequency of levels of syntactic acceptability as a percentage of the total number of recognisable words, nonwords and others: Adults (A) and Children (C).

LEVEL OF ACCEPTABILITY	FREQUENCY (%)					
	Recognisable word		Nonword		N/A (other)	
	A	C	A	C	A	C
Unacceptable	15.8	19.5	20.9	12.5	9.9	37.8
Preceding context	18.0	19.6	2.0	2.4	3.5	3.8
Following context	15.2	17.7	7.8	13.3	6.3	4.4
Whole sentence	19.4	18.6	16.8	19.0	9.2	4.4
Whole passage	25.8	18.1	45.5	40.8	12.3	11.5
Non-applicable	0.2	0.5	0.8	8.7	57.4	37.2
Other	5.6	6.1	6.1	3.3	1.4	0.6
Total number	1300	657	244	368	284	156

TABLE 5.3 (d). Frequency of degrees of graphic proximity as a percentage of the total number of recognisable words, nonwords and others: Adults (A) and Children (C).

DEGREE OF PROXIMITY	FREQUENCY(%)					
	Recognisable word		Nonword		N/A (other)	
	A	C	A	C	A	C
No proximity	5.4	6.4	0.0	0.0	0.7	0.0
Key letter or letters	6.0	4.7	1.6	1.1	1.4	1.3
Middle portions	1.1	1.7	1.6	1.1	0.0	0.0
End portions	2.4	2.9	0.8	2.2	0.0	0.0
Beginning portions	16.1	13.9	17.6	12.2	10.2	9.6
Beginning and middle portions	17.2	16.1	19.7	14.9	6.7	6.4
Beginning and end portions	15.2	11.9	22.1	25.5	3.5	1.3
Beginning, middle and end portions	2.3	3.3	10.2	10.6	2.8	0.0
Single grapheme difference	24.9	29.4	25.4	29.3	1.8	1.3
Homograph	0.2	0.5	0.4	2.2	0.7	0.0
Textual item + extra	2.5	3.2	0.0	0.3	0.0	0.0
Non-applicable	6.8	6.1	0.4	0.5	72.2	80.1
Total number	1300	657	244	368	284	156

TABLE 5.3 (e). Relative frequency of degrees of phonemic proximity as a percentage of the total number of recognisable words, nonwords and others: Adults (A) and Children (C).

DEGREE OF PROXIMITY	FREQUENCY (%)					
	Recognisable word		Nonword		N/A (other)	
	A	C	A	C	A	C
No proximity	8.8	10.2	2.9	1.4	0.7	1.9
Key letter or letters	3.7	4.3	1.6	2.7	1.8	0.0
Middle portions	0.9	1.2	1.2	1.4	0.4	0.6
End portions	4.5	4.9	2.5	8.7	0.7	0.6
Beginning portions	17.5	15.4	21.7	14.1	11.3	9.0
Beginning and middle portions	12.3	10.8	12.7	8.2	3.9	5.1
Beginning and end portions	13.8	11.3	23.4	25.3	4.2	1.3
Beginning, middle and end portions	1.5	1.4	7.4	8.2	1.1	0.0
Single word or consonent difference	27.4	31.4	25.8	28.5	3.5	0.6
Homophone	0.0	0.2	0.0	0.0	0.6	0.6
Textual item + extra	2.7	3.0	0.4	1.1	0.0	0.0
Non-applicable	6.8	6.1	0.4	0.5	72.5	80.1
Total number	1300	657	244	368	284	156

TABLE 5.3 (f). Relative frequency of each degree of simultaneous graphic and phonemic proximity as a percentage of the total number of recognisable words, non-words and other errors: Adults (A) and Children (C)

DEGREE OF PROXIMITY	FREQUENCY (%)					
	Recognisable word		Nonword		N/A (other)	
	A	C	A	C	A	C
Key element in common	4.0	4.1	1.6	3.0	2.1	0.0
Middle portions	0.8	1.1	1.2	1.1	0.4	0.6
End portions	4.5	4.4	2.5	7.3	0.4	0.6
Beginning portions	19.1	16.0	22.5	15.2	11.3	9.6
Beginning and middle portions	14.8	13.0	13.9	9.0	4.6	5.1
Beginning and end portions	14.3	12.2	25.8	26.4	4.2	1.3
Beginning, middle and end portions	1.7	1.7	8.2	8.7	1.8	0.0
Single element difference	21.7	25.6	20.5	25.8	2.1	0.6
Textual item + extra	1.1	1.8	0.0	0.3	0.0	0.0
No similarity	3.5	4.1	0.4	0.0	0.7	0.0
Others	7.7	9.9	1.2	2.7	0.2	2.2
Non-applicable	6.8	6.1	0.4	0.5	72.2	80.0
Total number	1300	657	244	368	284	156

TABLE 5.3 (g). Relative frequency of self corrected errors and/or observer intervention as a percentage of the total number of recognisable words, nonwords and others: Adults (A) and Children (C).

SELF CORRECTION AND OBSERVER INTERVENTION	FREQUENCY (%)					
	Recognisable word		Nonword		N/A (other)	
	A	C	A	C	A	C
No correction	69.5	86.9	60.7	86.7	37.3	57.1
No correction response supplied	7.2	0.0	14.8	3.5	54.6	32.1
Self-correction	17.2	10.2	13.1	6.0	6.7	10.3
Second response incorrect	0.2	0.3	0.4	0.3	0.0	0.0
Final correction	0.5	0.2	0.0	1.1	0.4	0.0
Unsuccessful correction	2.2	1.1	3.7	1.6	0.7	0.0
Correction with pointer	0.3	0.2	0.4	0.3	0.0	0.0
Pointer after unsuccessful correction	0.0	0.0	0.4	0.0	0.0	0.0
Response supplied after unsuccessful correction	2.9	0.3	6.6	0.5	0.4	0.6
Total number of errors made	1300	657	244	368	284	156

TABLE 5.3 (h). Relative frequency of self-corrected errors and/or observer intervention as a percentage of the total number of nonword errors at different levels of syntactic acceptability: Adults (A) and Children (C).

LEVEL OF ACCEPTABILITY	FREQUENCY (%)								Total (100%)	
	No correction		Self-correction		Observer intervention		Other			
	A	C	A	C	A	C	A	C	A	C
Unacceptable	47.1	82.6	13.7	6.5	35.3	4.3	3.9	6.6	51	46
Clause or more	83.3	66.7	16.7	0.0	0.0	16.7	0.0	16.6	6	6
Phrase or more	50.0	100.0	37.5	0.0	12.5	0.0	0.0	0.0	8	4
Surrounding words	100.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	1	2
Preceding context	80.0	66.7	0.0	22.2	0.0	11.1	20.0	0.0	5	9
Following context	57.9	93.3	21.1	2.0	10.5	2.0	10.5	2.1	19	49
Whole sentence	68.3	90.0	12.2	4.3	19.5	2.9	0.0	2.8	41	70
Whole passage	63.1	88.0	10.8	5.3	21.6	1.3	4.5	5.4	111	150
Non-applicable	50.0	75.0	0.0	15.6	50.0	6.3	0.0	3.1	2	32
Total nonword errors									244	368

TABLE 5.4. Frequency of syntactic acceptability of errors at different contextual levels, as a percentage of the total number of errors made: Adults and Children.

5.4.(i). Overall syntactic acceptability.

LEVEL OF ACCEPTABILITY	FREQUENCY (%)	
	Adults	Children
Completely unacceptable	15.5	19.7
Acceptable in some way	75.4	72.6
Other	9.1	7.7
Total number of errors made	1828	1181

5.4.(ii). Acceptable in some way.

LEVEL OF ACCEPTABILITY	FREQUENCY (%)	
	Adults	Children
Passage	26.3	24.3
Sentence	17.5	16.9
Preceding context	13.7	12.3
Following context	12.9	14.6
Units of less than a sentence	5.0	4.5
Total	75.4	72.6

TABLE 5.4. (Cont.)
5.4.(ii).a. Syntactic acceptability in preceding contexts at sentence level.

LEVEL OF ACCEPTABILITY	FREQUENCY (%)	
	Adults	Children
Preceding part of sentence	10.9	10.2
Preceding part of sentence + text to end of clause	1.3	0.7
Preceding part of sentence + text to end of phrase	0.1	0.0
Preceding part of sentence + surrounding words	1.4	1.4
Total	13.7	12.3

5.4.(ii).b. Syntactic acceptability in following contexts at sentence level.

LEVEL OF ACCEPTABILTY	FREQUENCY (%)	
	Adults	Children
Following sentence	5.6	5.5
Following part of sentence + text to end of clause	3.8	4.0
Following part of sentence + text to end of phrase	2.5	3.8
Following part of sentence + surrounding words	1.0	1.3
Total	12.9	14.6

TABLE 5.4. (Cont.)

5.4.(ii).c. Syntactic acceptability in units of less than a sentence.

LEVEL OF ACCEPTABILITY	FREQUENCY (%)	
	Adults	Children
Clause or more	1.1	1.0
Phrase or more	2.1	1.4
Surrounding words	1.8	2.1
Total	5.0	4.5

TABLE 5.4 (a). Relative frequency of general error types as a percentage of the total errors at different levels of syntactic acceptability: Adults (A) and Children (C).

ERROR TYPE	FREQUENCY (%) LEVEL OF ACCEPTABILITY													
	Unacceptable		Less than a Sentence		Preceding Context		Following Context		Whole Sentence		Whole Passage		Other (N/A)	
	A	C	A	C	A	C	A	C	A	C	A	C	A	C
Single Substitution	65.1	45.5	64.1	77.4	70.4	74.8	66.8	68.6	74.6	75.4	79.6	81.2	0.6	28.7
Compound substitution	19.0	26.6	27.2	17.0	16.4	16.8	27.2	19.8	13.2	13.6	9.4	9.8	0.0	5.3
Repeated substitution	0.7	0.4	0.0	0.0	0.4	0.0	1.3	1.2	0.9	1.5	1.9	1.7	0.0	0.0
Single word multiple	1.1	0.9	2.2	1.9	1.2	1.4	0.9	1.2	0.9	2.5	0.6	0.3	0.0	0.0
Compound multiple	0.4	0.4	0.0	0.0	0.8	0.0	0.4	0.6	0.3	0.0	0.4	0.0	0.0	0.0
Repeated multiple	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0
Single word insertion	0.7	0.0	2.2	1.9	4.8	3.5	3.4	1.7	3.8	3.5	4.6	1.0	0.0	0.0
Compound insertion	0.7	0.4	0.0	0.0	0.8	0.0	0.9	0.0	0.3	0.5	0.6	0.0	0.0	0.0
Single word omission	5.6	4.7	1.1	0.0	2.0	0.7	3.8	3.5	2.5	1.0	1.5	0.7	1.2	0.0
Compound omission	1.1	13.3	0.0	0.0	0.4	2.1	0.4	0.0	1.9	0.0	1.0	2.8	0.0	0.0
Repeated omission	0.0	0.0	0.0	0.0	0.4	0.0	0.4	0.0	0.3	0.0	0.0	0.0	0.0	0.0
No response	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	77.2	35.1
Punctuation	1.8	3.4	0.0	1.9	0.0	0.0	0.0	0.6	0.0	0.0	0.0	1.0	1.8	2.1
Compound punctuation	0.4	0.9	2.2	0.0	0.8	0.7	0.4	1.2	0.3	1.5	0.2	1.0	0.6	0.0
Single word try	3.5	3.0	1.1	0.0	1.6	0.0	2.1	1.7	0.9	0.0	0.2	0.3	18.6	27.7
Compound try	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.0	0.0	0.0	0.0	0.0	0.0	1.1
Total (100%)	284	233	92	53	250	143	235	172	319	199	481	287	167	94

TABLE 5.4 (b). Relative frequency of different grammatical functions (parts of speech) for which erroneous responses were made, as a percentage of the total errors at different levels of syntactic acceptability: Adults (A)
and Children (C).

GRAMMATICAL FUNCTION	FREQUENCY (%)													
	LEVEL OF ACCEPTABILITY													
	Unacceptable		Less than a Sentence		Preceding Context		Following Context		Whole Sentence		Whole Passage		Other (N/A)	
	A	C	A	C	A	C	A	C	A	C	A	C	A	C
Noun category	33.8	33.9	54.3	52.8	19.6	20.8	38.7	49.4	47.0	53.8	50.7	58.9	62.3	50.5
Verb category	21.8	14.9	7.6	13.2	20.8	10.4	24.3	18.0	16.9	14.1	16.0	12.9	9.0	15.1
Noun modifier	17.3	18.9	15.2	20.8	26.0	30.6	14.0	14.0	16.9	18.1	18.9	16.4	13.8	24.7
Verb modifier	4.6	3.4	3.3	0.0	2.0	0.0	2.1	1.7	1.6	1.5	1.2	3.8	4.2	5.4
Function word	18.7	20.6	16.3	11.3	30.0	35.4	18.3	14.0	15.0	8.5	11.4	5.6	5.4	2.2
Other	3.9	9.0	3.3	1.9	1.6	2.8	2.6	2.9	2.5	4.0	1.7	2.4	5.4	2.2
Total (100%)	284	233	92	53	250	144	235	172	319	199	481	287	167	93

TABLE 5.4 (c). Relative frequency of recognisable words, nonwords and others as a percentage of the total number of errors at different levels of syntactic acceptability: Adults (A) and Children (C).

LEVEL OF ACCEPTABILITY	FREQUENCY (%)						Total (100%)	
	Recognisable word		Nonword		N/A (other)			
	A	C	A	C	A	C	A	C
Unacceptable	72.2	54.9	18.0	19.7	9.9	25.3	284	233
Preceding context	94.0	89.6	2.0	6.3	4.0	4.2	250	144
Following context	84.3	67.4	8.1	28.5	7.6	4.1	235	172
Whole sentence	79.0	61.3	12.9	35.2	8.2	3.5	319	199
Whole passage	69.6	41.5	23.1	52.3	7.3	6.3	481	287
Non applicable	1.2	3.2	1.2	34.4	97.5	62.4	167	93
Other	77.7	75.5	16.0	22.6	6.3	1.9	94	53
							1828	1181

TABLE 5.4 (d). Relative frequency of degrees of graphic proximity as a percentage of the total errors at different levels of syntactic acceptability: Adults (A) and Children (C).

DEGREE OF PROXIMITY	FREQUENCY (%) LEVEL OF ACCEPTABILITY													
	Unacceptable		Less than a Sentence		Preceding Context		Following Context		Whole Sentence		Whole Passage		Other (N/A)	
	A	C	A	C	A	C	A	C	A	C	A	C	A	C
No proximity	2.1	2.1	2.2	0.0	7.6	12.5	4.7	3.5	4.4	5.0	3.7	1.0	1.2	0.0
Key element in common	3.5	3.0	3.3	1.9	8.8	7.6	6.4	4.1	4.4	2.0	4.2	1.4	1.2	3.2
Middle portion	2.1	3.4	0.0	1.9	0.8	0.7	0.4	0.6	1.6	1.0	0.8	0.3	0.0	1.1
End portion	1.1	1.3	3.3	1.9	2.4	4.2	2.1	2.3	1.3	1.0	2.5	3.5	0.0	1.1
Beginning portion	21.8	15.9	15.2	20.8	14.0	12.5	17.6	12.2	10.0	10.6	14.6	5.2	14.4	30.1
Beginning and middle portions	20.8	13.7	17.8	11.3	19.6	13.2	18.3	19.2	16.9	14.1	13.5	11.8	3.0	20.4
Beginning and end portions	7.7	6.4	7.6	13.2	8.4	4.9	14.5	13.9	19.4	19.6	23.3	27.2	0.0	4.3
Beginning, middle and end portions	3.2	1.7	4.3	1.9	2.4	3.5	2.6	6.4	5.0	6.5	4.6	9.1	0.0	1.1
Single element different	24.3	23.6	32.6	39.6	23.6	29.2	23.0	26.2	24.1	28.1	21.2	28.6	0.0	2.2
Homograph	0.4	0.4	0.0	0.0	0.0	0.0	0.0	1.2	0.3	1.5	0.6	1.7	0.6	0.0
Textual item + extra	1.1	1.7	3.3	1.9	2.4	3.5	1.7	0.6	1.9	0.5	2.1	3.1	0.0	0.0
Non-applicable	12.0	26.6	7.6	5.7	10.0	8.3	7.7	8.7	10.7	10.1	8.9	7.0	79.6	36.6
Total (100%)	284	233	92	53	250	144	235	172	319	199	481	287	167	93

TABLE 5.4 (e). Relative frequency of degrees of phonemic proximity as a percentage of the total errors at different levels of syntactic acceptability: Adults (A) and Children (C).

DEGREE OF PROXIMITY	FREQUENCY (%) LEVEL OF ACCEPTABILITY													
	Unacceptable		Less than a Sentence		Preceding Context		Following Context		Whole Sentence		Whole Passage		Other (N/A)	
	A	C	A	C	A	C	A	C	A	C	A	C	A	C
No proximity	6.7	7.3	3.3	9.6	10.0	17.4	7.7	6.4	6.3	3.5	7.3	2.1	1.2	4.3
Key element in common	3.2	5.2	1.1	1.8	5.6	5.6	5.1	3.5	2.8	2.5	2.1	1.0	1.2	3.2
Middle portion	1.8	1.7	0.0	0.0	0.8	2.1	0.9	0.6	0.9	2.0	0.8	0.0	0.0	2.2
End portion	1.8	3.4	3.3	5.8	3.6	4.9	4.3	7.6	4.7	4.5	5.0	8.4	0.6	1.1
Beginning portion	24.6	16.3	19.6	23.1	18.0	16.7	17.0	14.0	12.2	9.5	16.0	7.3	14.4	31.2
Beginning and middle portions	15.1	10.3	9.8	7.7	15.6	6.3	14.9	14.0	12.2	9.0	7.1	6.3	1.8	12.9
Beginning and end portions	6.7	6.0	14.1	11.5	9.2	3.5	14.5	12.2	17.6	16.1	21.4	30.0	0.0	5.4
Beginning, middle and end portions	2.1	0.4	3.3	0.0	0.4	2.8	0.9	6.4	3.1	4.0	4.0	5.2	0.0	0.0
Single element different	26.1	21.0	31.5	30.8	22.8	29.9	23.8	24.4	28.2	37.7	25.2	29.6	1.2	2.2
Homophone	0.0	0.0	0.0	1.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1
Textual item + extra	0.0	1.7	5.4	3.8	3.2	2.1	3.4	2.3	1.3	1.0	2.3	3.1	0.0	0.0
Non-applicable	12.0	26.6	7.6	5.8	10.8	9.0	7.7	8.7	10.7	10.1	8.9	7.0	79.6	36.6
Total (100%)	284	233	92	53	250	144	235	172	319	199	481	287	167	93

TABLE 5.4 (f). Relative frequency of self-corrected errors and/or observer intervention as a percentage of the total errors at different levels of syntactic acceptability: Adults (A) and Children (C).

LEVEL OF ACCEPTABILITY	FREQUENCY (%)								Total (100%)	
	No correction		Self-correction		Observer intervention		Other			
	A	C	A	C	A	C	A	C	A	C
Unacceptable	61.3	84.1	16.2	8.6	19.3	5.2	3.2	2.1	284	233
Clause or more	81.0	75.0	19.0	8.3	0.0	8.3	0.0	8.4	21	12
Phrase or more	76.9	87.5	10.3	6.2	10.3	0.0	2.5	6.3	39	16
Surrounding words	78.1	76.0	12.5	24.0	9.4	0.0	0.0	0.0	32	25
Preceding context	66.8	84.0	22.0	14.6	8.4	1.4	2.8	0.0	250	144
Following context	71.1	91.9	14.0	4.1	8.1	1.7	6.9	2.3	235	172
Whole sentence	72.4	87.4	16.0	7.5	10.6	3.0	1.0	2.1	319	199
Whole passage	69.0	88.5	14.8	6.6	12.2	3.1	4.0	1.8	481	287
Non-applicable	8.4	36.6	1.8	16.1	89.8	46.2	0.0	1.1	167	93
									1828	1181

TABLE.5.5. Relative frequency of semantic acceptability at different contextual levels, as a percentage of the total number of errors made: Adults and Children.

5.5.(i). Overall semantic acceptability

LEVEL OF ACCEPTABILITY	FREQUENCY (%)	
	Adults	Children
Completely unacceptable	37.9	56.8
Acceptable in some way	53.2	38.8
Others	8.9	4.4
Total number of errors made	1828	1181

5.5.(ii). Acceptable in some way.

LEVEL OF ACCEPTABILITY	FREQUENCY (%)	
	Adults	Children
Passage	7.2	4.1
Sentence	13.1	7.3
Preceding context	16.6	12.9
Following context	11.5	9.7
Units of less than a sentence	4.8	4.7
Total	53.2	38.8

TABLE 5.5 (Cont.)
5.5.(ii).a. Semantic acceptability in preceding contexts at sentence level.

LEVEL OF ACCEPTABILITY	FREQUENCY (%)	
	Adults	Children
Preceding part of sentence	12.7	9.8
Preceding part of sentence + text to end of clause	1.4	0.8
Preceding part of sentence + text to end of phrase	0.3	0.0
Preceding part of sentence + surrounding words	2.1	2.3
Total	16.5	12.9

5.5.(ii).b. Semantic acceptability in following contexts at sentence level.

LEVEL OF ACCEPTABILITY	FREQUENCY (%)	
	Adults	Children
Following part of sentence	5.2	4.7
Following part of sentence + text to end of clause	3.1	3.1
Following part of sentence + text to end of phrase	2.2	1.4
Following part of sentence + surrounding words	1.0	0.5
Total	11.5	9.7

5.5.(ii).c. Semantic acceptability in units of less than a sentence.

LEVEL OF ACCEPTABILITY	FREQUENCY (%)	
	Adults	Children
Clause or more	1.3	1.0
Phrase or more	1.3	1.4
Surrounding words	2.2	2.3
Total	4.8	4.7

TABLE 5.5 (a). Relative frequency of general error types as a percentage of the total errors at different levels of semantic acceptability: Adults (A) and Children (C).

ERROR TYPE	FREQUENCY (%)													
	LEVEL OF ACCEPTABILITY													
	Unacceptable		Less than a Sentence		Preceding Context		Following Contexte		Whole Sentence		Whole Passage		Other (N/A)	
	A	C	A	C	A	C	A	C	A	C	A	C	A	C
Single Substitution	74.3	64.7	72.4	75.0	70.7	77.0	68.1	74.0	72.1	77.9	68.2	75.5	0.0	0.0
Compound substitution	16.2	20.6	17.2	14.3	17.1	13.2	18.1	13.0	12.1	3.5	7.6	10.2	0.0	0.0
Repeated substitution	0.6	1.0	0.0	0.0	1.0	0.0	2.4	1.7	2.1	2.3	2.3	0.0	0.0	0.0
Single word multiple	0.4	0.7	3.4	0.0	1.3	1.3	0.0	1.7	1.2	3.5	1.5	0.0	0.0	0.0
Compound multiple	0.4	0.4	0.0	0.0	0.3	0.0	0.0	0.9	0.4	0.0	0.8	0.0	0.0	0.0
Repeated multiple	0.0	0.1	0.0	0.0	0.0	0.7	0.0	0.9	0.0	0.0	0.0	0.0	0.0	0.0
Single word insertion	0.4	0.0	3.4	5.4	4.6	3.3	1.9	1.7	4.6	8.1	14.4	4.1	0.0	0.0
Compound insertion	0.4	0.1	0.0	0.0	1.0	0.0	0.5	0.0	0.8	1.2	0.8	0.0	0.0	0.0
Single word omission	2.3	1.9	1.1	1.8	1.6	0.0	5.2	4.3	3.3	3.5	3.8	0.0	1.2	0.0
Compound omission	1.0	5.8	0.0	0.0	0.3	2.0	1.0	0.0	1.7	0.0	0.8	0.0	0.0	0.0
Repeated omission	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0
No response	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	79.6	61.5
Punctuation	1.2	1.3	0.0	3.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.1	0.0	1.9
Compound punctuation	0.1	0.6	2.3	0.0	0.7	2.0	0.5	0.9	0.8	0.0	0.0	4.1	0.6	0.0
Single word try	2.6	2.4	0.0	0.0	1.0	0.0	1.4	1.7	0.4	0.0	0.0	0.0	18.5	36.5
Compound try	0.0	0.1	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1
Total (100%)	693	671	87	56	304	152	210	115	240	86	132	49	162	52

TABLE 5.5 (c). Relative frequency of degrees of graphic proximity as a percentage of the total errors at different levels of semantic acceptability: Adults (A) and Children (C).

DEGREE OF PROXIMITY	FREQUENCY (%) LEVEL OF ACCEPTABILITY													
	Unacceptable		Less than a Sentence		Preceding Context		Following Context		Whole Sentence		Whole Passage		Other (N/A)	
	A	C	A	C	A	C	A	C	A	C	A	C	A	C
No proximity	1.7	1.3	2.3	3.6	7.2	13.2	6.7	5.2	5.8	4.7	5.3	2.0	1.2	0.0
Key element in common	2.9	1.8	5.7	0.0	6.9	8.0	7.1	6.1	5.0	3.5	4.5	2.0	1.2	3.8
Middle portion	1.3	1.8	0.0	1.8	1.0	1.0	2.0	0.0	1.2	0.0	0.8	0.0	0.0	0.0
End portion	2.3	1.9	3.4	3.6	2.0	3.9	1.4	3.5	1.2	1.2	1.5	2.0	0.0	0.0
Beginning portion	18.5	13.7	12.6	23.2	13.2	11.2	16.2	8.7	11.2	9.3	13.6	0.0	14.2	21.2
Beginning and middle portions	17.9	14.0	17.2	5.4	13.8	12.5	18.6	13.9	18.7	20.9	16.7	10.2	2.5	11.5
Beginning and end portions	18.0	19.1	10.3	14.3	19.0	6.6	12.9	4.3	11.7	11.6	11.4	26.5	0.0	0.0
Beginning, middle and end portions	6.1	7.0	2.3	1.8	2.0	2.6	1.4	5.2	3.7	1.2	0.8	4.1	0.0	0.0
Single element different	23.8	25.0	33.3	32.1	21.4	28.9	23.3	31.3	24.6	29.1	18.2	24.5	0.0	0.0
Homograph	0.4	1.5	0.0	0.0	0.0	0.0	0.5	0.0	0.4	0.0	0.0	2.0	0.6	0.0
Textual item + extra	0.7	0.7	2.3	3.6	3.0	2.0	1.9	3.5	2.5	2.3	4.5	12.2	0.0	0.0
Non-applicable	6.3	12.1	10.3	10.7	9.2	10.0	9.5	9.6	13.7	16.3	22.7	14.3	80.2	63.5
Total (100%)	693	671	87	56	304	152	210	115	240	86	132	49	162	52

TABLE 5.5 (d). Relative frequency of degrees of phonemic proximity as a percentage of the total errors at different levels of semantic acceptability: Adults (A) and Children (C).

DEGREE OF PROXIMITY	FREQUENCY (%) LEVEL OF ACCEPTABILITY													
	Unacceptable		Less than a Sentence		Preceding Context		Following Context		Whole Sentence		Whole Passage		Other (N/A)	
	A	C	A	C	A	C	A	C	A	C	A	C	A	C
No proximity	4.3	4.3	6.9	12.5	10.9	15.8	9.5	8.7	8.7	2.3	8.3	2.0	1.2	2.8
Key element in common	2.9	3.1	2.3	3.6	4.6	5.3	5.7	4.3	2.5	2.3	0.8	0.0	1.2	0.0
Middle portion	1.3	1.2	0.0	1.8	0.7	3.3	1.0	0.0	0.8	0.0	0.8	0.0	0.0	0.0
End portion	4.6	5.8	3.4	5.4	3.0	5.9	4.3	6.1	4.2	4.7	2.3	6.1	0.6	0.0
Beginning portion	20.3	15.2	19.5	16.1	15.8	13.8	17.1	11.3	12.1	10.5	14.4	4.1	14.2	21.2
Beginning and middle portions	12.6	9.1	8.0	5.5	12.5	6.6	14.3	15.7	12.5	11.6	6.1	4.1	1.2	9.6
Beginning and end portions	18.3	18.2	9.2	8.9	18.1	8.6	10.0	5.2	9.6	14.0	10.6	22.4	0.0	0.0
Beginning, middle and end portions	4.5	4.6	1.2	1.8	0.3	0.0	0.5	4.3	2.1	0.0	1.5	4.1	0.0	0.0
Single element different	24.4	25.0	32.2	28.6	21.7	28.3	24.3	29.6	32.1	36.0	27.3	40.8	1.2	0.0
Homophone	0.0	0.0	0.0	1.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.9
Textual item + extra	0.4	1.3	6.9	3.6	2.6	2.6	3.8	5.2	1.7	2.3	5.3	2.0	0.0	0.0
Non-applicable	6.3	12.1	10.3	10.7	9.9	9.9	9.5	9.6	13.7	16.3	22.7	14.3	80.2	63.5
Total (100%)	693	671	87	56	304	152	210	115	240	86	132	49	162	52

TABLE 5.5 (e). Relative frequency of self-corrected errors and/or observer intervention as a percentage of the total errors at different levels of semantic acceptability: Adults (A) and Children (C).

LEVEL OF ACCEPTABILITY	FREQUENCY (%)								Total (100%)	
	No alteration		Self-correction		Observer intervention		Other			
	A	C	A	C	A	C	A	C	A	C
Unacceptable	62.2	85.7	15.7	7.2	18.1	4.5	4.0	2.6	693	671
Clause or more	65.2	91.7	26.1	8.3	4.3	0.0	4.4	0.0	23	12
Phrase or more	91.7	76.5	0.0	17.6	8.3	0.0	0.0	5.9	24	17
Surrounding words	77.5	74.1	15.0	25.9	7.5	0.0	0.0	0.0	40	27
Preceding context	63.2	84.2	24.3	13.2	10.2	2.0	2.3	0.6	304	152
Following context	75.7	92.2	15.7	5.2	4.8	1.7	3.8	0.9	210	115
Whole sentence	76.7	87.2	12.9	11.6	8.3	0.0	2.1	1.2	240	86
Whole passage	85.6	95.9	9.8	4.1	1.5	0.0	3.1	0.0	132	49
Non-applicable	6.2	7.7	1.9	15.4	91.9	76.9	0.0	0.0	162	52
									1828	1181

TABLE 5.6. Relative frequency of errors showing simultaneous syntactic and semantic acceptability as a percentage of the total number of errors: Adults and Children.

LEVEL OF ACCEPTABILITY	FREQUENCY (%)	
	Adults	Children
Unacceptable	15.5	19.6
Clause or more	1.3	0.9
Phrase or more	1.3	1.4
Surrounding words	2.2	2.3
Preceding context	16.6	12.9
Following context	11.6	9.7
Whole sentence	13.1	7.3
Whole Passage	7.2	4.1
Non-applicable	8.9	4.4
Other*	22.4	37.3
Total number	1828	1181

* Note: 'other' errors were syntactically acceptable while being completely semantically unacceptable (see Table 5.6 (ii).)

TABLE 5.6 (a). Relative frequency of degrees of simultaneous graphic and phonemic proximity to text crosstabulated with simultaneous syntactic and semantic acceptability: Adults (A) and Children (C).

DEGREE OF PROXIMITY (graphic & phonemic)	FREQUENCY (%)															
	LEVEL OF ACCEPTABILITY (syntactic & semantic)															
	Unacceptable		Less than a Sentence		Preceding Context		Following Context		Whole Sentence		Whole Passage		Other		Non-applicable	
	A	C	A	C	A	C	A	C	A	C	A	C	A	C	A	C
No proximity	2.1	2.2	2.3	3.7	4.6	8.6	3.9	4.4	2.9	2.3	0.8	0.0	3.2	0.2	1.2	0.0
Key letter(s) or sound(s)	3.2	5.2	2.3	3.7	5.3	4.6	6.3	4.4	2.5	2.3	0.8	0.0	3.2	2.0	1.9	0.0
Middle portions	1.4	1.7	0.0	1.9	0.7	1.3	0.5	0.0	0.8	0.0	0.8	0.0	1.0	0.5	0.0	0.0
End portions	1.8	2.1	3.4	5.6	3.9	5.9	3.9	6.1	3.8	4.7	2.3	6.1	6.3	4.1	0.0	0.0
Beginning portion	25.7	16.4	19.5	18.5	15.5	13.8	17.4	11.4	12.7	14.0	18.2	4.1	20.1	13.3	14.2	23.1
Beginning and middle portions	15.5	10.7	11.5	5.6	14.1	9.9	15.5	21.0	17.1	17.4	12.1	8.2	12.4	7.5	1.9	1.6
Beginning and end portions	7.4	6.4	11.5	11.1	19.4	9.2	11.1	5.3	10.0	12.8	12.1	24.5	26.2	24.0	0.0	0.0
Beginning, middle and end portions	3.2	0.4	1.1	1.9	0.7	0.0	1.0	4.4	3.8	1.2	0.0	4.1	6.3	7.0	0.0	0.0
Single element different	23.0	19.8	32.2	25.9	15.5	23.0	21.3	26.3	22.5	24.4	18.2	32.7	18.2	20.8	0.6	0.0
Textual item + extra	0.0	1.7	1.1	3.7	1.3	1.2	1.9	1.8	0.2	2.3	2.3	2.0	0.0	0.2	0.0	0.0
Other	4.7	7.1	4.6	9.3	10.5	13.2	8.0	7.9	9.9	4.6	8.3	4.0	2.7	14.7	0.0	3.8
Non-applicable	12.0	26.3	10.3	9.3	8.6	9.2	9.2	7.0	13.8	15.1	22.7	14.3	2.4	3.6	80.2	63.5
Total (100%)	284	232	87	54	304	152	207	114	240	86	132	49	412	442	162	52

TABLE 5.6 (i). Relative frequency of errors which were acceptable syntactically but unacceptable semantically, as a percentage of the total number of errors: Adults and Children.

LEVEL OF ACCEPTABILITY	FREQUENCY (%)	
	Adults	Children
Whole passage syntactically acceptable (semantically unacceptable)	10.9	14.9
Whole sentence syntactically acceptable (semantically unacceptable)	4.0	8.3
Other syntactically acceptable (semantically unacceptable)	7.2	10.6
Non-applicable	0.3	3.5
Total	22.4	37.3

TABLE 5.6 (b). Relative frequency of self-corrected errors and/or observer intervention as a percentage of the total errors at different levels of simultaneous syntactic and semantic acceptability: Adults (A) and Children (C).

LEVEL OF ACCEPTABILITY	FREQUENCY (%)								Total (100%)	
	No correction		Self-correction		Observer intervention		Other			
	A	C	A	C	A	C	A	C	A	C
Unacceptable	61.3	84.1	16.2	8.6	19.3	5.2	3.2	2.1	284	232
Clause or more	65.2	81.8	26.1	9.1	4.3	0.0	4.4	9.1	23	11
Phrase or more	91.7	76.5	0.0	17.6	4.2	0.0	4.1	5.9	24	17
Surrounding words	77.5	74.1	15.0	25.9	7.5	0.0	0.0	0.0	40	26
Preceding context	63.2	84.2	24.3	12.5	9.9	2.0	2.6	1.3	304	152
Following context	75.4	92.1	15.9	5.3	4.8	1.8	3.9	0.8	207	114
Whole sentence	76.7	87.2	12.9	11.6	8.3	0.0	2.1	1.2	240	86
Whole passage	85.6	95.9	9.8	4.1	1.5	0.0	3.1	0.0	132	49
Non-applicable	6.2	7.7	1.9	15.4	91.9	76.9	0.0	0.0	162	52
Other	63.1	86.4	15.3	6.3	17.2	4.3	4.4	3.0	412	442
									1828	1181

Other = one variable unacceptable while the other variable shows some degree of acceptability. The unacceptable variable is usually semantic.

TABLE 5.7. Relative frequency of degrees of graphic proximity of error to text, as a percentage of the total number of errors made: Adults and Children.

DEGREE OF GRAPHIC PROXIMITY	FREQUENCY (%)	
	Adults	Children
No proximity	3.9	3.6
Letter or letters	4.7	3.1
Middle portions	1.0	1.3
End portions	1.8	2.3
Beginning portions	15.4	12.8
Beginning and middle portions	15.9	14.5
Beginning and end portions	14.3	14.7
Beginning, middle and end portions	3.4	5.2
Single grapheme difference	21.4	25.7
Homograph	0.3	0.9
Textual item + extra	1.8	1.9
Non-applicable	16.1	14.1
Total number of errors made	1828	1181

TABLE 5.7(i). Relative frequency of degrees of phonemic proximity to text, as a percentage of the total errors with no graphic proximity: Adults and Children.

DEGREE OF PHONEMIC PROXIMITY	FREQUENCY (%)	
	Adults	Children
No proximity	65.3	64.3
Key sound or sounds	0.0	2.4
Middle portions	0.0	4.8
End portions	0.0	0.0
Single vowel or consonant difference	31.9	28.6
Whole text +	1.4	0.0
Total number of errors with no graphic proximity	72	42
Percent of total errors	3.9	3.6

TABLE 5.7 (a). Relative frequency of errors in general error categories as a percentage of the total number of errors with different degrees of graphic proximity to the text: Adults (A) and Children (C).

DEGREE OF PROXIMITY	GENERAL ERROR CATEGORY FREQUENCY (%)													
	Single substitution		Compound substitution		Repeated substitution		Multiple		Try		Other*		Total (100%)	
	A	C	A	C	A	C	A	C	A	C	A	C	A	C
No proximity	71.0	66.7	24.6	33.3	2.8	0.0	0.0	0.0	1.4	0.0	0.0	0.0	69	42
Key element in common	79.8	64.9	16.7	24.3	0.0	5.4	0.0	0.0	3.6	5.4	0.0	0.0	84	37
Middle portion	77.8	93.3	22.2	6.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	18	15
End portion	84.8	70.4	15.2	29.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	33	27
Beginning portion	69.8	70.9	16.7	17.2	2.5	1.3	0.4	0.0	10.7	10.6	0.0	0.0	281	151
Beginning and middle portions	76.3	71.9	15.8	14.6	0.3	1.8	0.7	0.0	6.4	11.7	0.0	0.0	291	171
Beginning and end portions	82.8	79.9	16.1	20.1	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	261	174
Beginning, middle and end portions	84.1	82.0	9.5	14.8	4.8	3.3	1.6	0.0	0.0	0.0	0.0	0.0	63	61
Single element different	83.6	82.2	14.8	17.2	1.0	0.7	0.0	0.0	0.5	0.0	0.0	0.0	391	303
Homograph	66.7	72.7	0.0	27.3	0.0	0.0	16.7	0.0	16.7	0.0	0.0	0.0	6	11
Textual item + extra	71.9	77.3	28.1	22.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	32	22
Non-applicable	0.0	2.4	2.7	1.2	0.0	0.0	5.4	10.8	0.0	0.0	92.0	85.6	299	167

* Other includes omissions, insertions and non-responses.

TABLE 5.7 (b). Relative frequency of different grammatical functions (parts of speech) of items of text for which erroneous responses were made as a percentage of the total number of errors with different degrees of graphic proximity to the text: Adults (A) and Children (C).

DEGREE OF PROXIMITY	GRAMMATICAL FUNCTION FREQUENCY (%)													
	Noun category		Verb category		Noun modifier		Verb modifier		Function word		Other		Total (100%)	
	A	C	A	C	A	C	A	C	A	C	A	C	A	C
No proximity	11.1	0.0	4.2	7.1	4.2	4.8	0.0	0.0	80.6	88.1	0.0	0.0	72	42
Key letter	18.6	21.6	12.8	13.5	15.1	18.9	4.7	0.0	47.7	45.9	1.2	0.0	86	37
Middle portion	55.6	46.7	33.3	6.7	5.6	20.0	0.0	0.0	5.6	13.3	0.0	13.3	18	15
End portion	36.4	40.7	24.2	14.8	9.1	14.8	0.0	7.4	27.3	22.2	3.0	0.0	33	27
Beginning portion	41.3	43.7	18.9	18.5	21.7	18.5	3.9	1.3	12.1	15.9	2.2	2.0	281	151
Beginning and middle portions	45.7	46.8	19.2	18.7	22.3	24.0	3.1	3.5	8.2	3.5	1.3	5.5	291	171
Beginning and end portions	48.7	63.2	23.8	12.6	18.8	18.4	2.7	4.0	4.2	0.6	2.9	1.2	261	174
Beginning, middle and end portions	55.6	57.4	17.5	14.8	17.5	16.4	3.2	9.8	1.6	1.6	4.8	0.0	63	61
Single element different	48.6	52.5	17.9	13.5	19.4	22.8	1.3	1.3	11.5	17.1	1.3	16.7	391	303
Homograph	83.3	81.8	16.7	0.0	0.0	18.2	0.0	0.0	0.0	0.0	0.0	0.0	6	11
Textual item + extra	25.0	36.4	34.4	36.4	31.2	22.7	0.0	0.0	9.4	4.5	0.0	0.0	32	22
Non-applicable	15.8	31.1	10.9	7.2	12.6	15.6	2.0	1.8	24.1	24.6	8.2	19.8	294	167

TABLE 5.7 (c). Relative frequency of recognisable words, nonwords and others as a percentage of the total number of errors with different degrees of graphic proximity: Adults (A) and Children (C).

DEGREE OF PROXIMITY	FREQUENCY (%)						Total (100%)	
	Recognisable word		Nonword		N/A (other)			
	A	C	A	C	A	C	A	C
No proximity	97.2	100.0	0.0	0.0	2.8	0.0	72	42
Key letter or letters	90.7	83.3	4.7	10.8	4.7	5.4	86	37
Middle portions	77.8	73.3	22.2	26.7	0.0	0.0	18	15
End portions	93.9	70.4	6.1	29.6	0.0	0.0	33	27
Beginning portions	74.4	60.3	15.3	29.8	10.3	9.9	281	151
Beginning and middle portions	77.0	62.0	16.5	32.2	6.5	5.8	291	171
Beginning and end portions	75.5	44.8	20.7	54.0	3.8	1.1	261	174
Beginning, middle and end portions	47.6	36.1	39.7	63.9	12.7	0.0	63	61
Single grapheme difference	82.9	63.7	15.9	35.6	1.3	0.7	391	303
Homograph	50.0	27.3	16.7	72.7	33.3	0.0	6	11
Textual item + extra	100.0	95.5	0.0	4.5	0.0	0.0	32	22
Non-applicable	29.9	24.0	0.3	1.2	69.7	74.9	294	167
							1828	1181

TABLE 5.7 (d). Relative frequency of different levels of syntactic acceptability as a percentage of the total errors with each degree of graphic proximity: Adults (A) and Children (C).

DEGREE OF PROXIMITY	LEVEL OF ACCEPTABILITY — FREQUENCY (%)															
	Unacceptable		Less than a Sentence		Preceding Context		Following Context		Whole Sentence		Whole Passage		Other (N/A)		Total (100%)	
	A	C	A	C	A	C	A	C	A	C	A	C	A	C	A	C
No proximity	8.3	11.9	2.8	0.0	26.4	42.9	15.3	14.3	19.4	23.8	25.0	7.1	2.8	0.0	72	42
Key element in common	11.6	18.9	3.5	2.7	25.6	29.7	17.4	18.9	16.3	10.8	23.3	10.8	2.3	8.1	86	37
Middle portions	33.3	53.3	0.0	6.7	11.1	6.7	5.6	6.7	27.8	13.3	22.2	6.7	0.0	6.7	18	15
End portions	9.1	11.1	9.1	3.7	18.2	22.2	15.2	14.8	12.1	7.4	36.4	37.0	0.0	3.7	33	27
Beginning portion	22.1	24.5	5.0	7.3	12.5	11.9	15.7	13.9	11.4	13.9	24.9	9.9	8.5	18.5	281	151
Beginning and middle portions	20.3	18.7	5.5	3.5	16.8	11.1	14.8	19.3	18.6	16.4	22.3	19.9	1.7	11.1	291	171
Beginning and end portions	8.4	8.6	3.8	4.0	8.0	4.0	13.0	13.8	23.8	22.4	42.9	44.8	0.0	2.3	261	174
Beginning, middle and end portions	14.3	6.6	6.3	1.6	9.5	8.2	9.5	18.0	25.4	21.3	34.9	42.6	0.0	1.6	63	61
Single element different	17.6	18.2	7.7	3.3	15.1	13.9	13.8	14.9	19.7	18.5	26.1	27.1	0.0	0.7	391	303
Homograph	16.7	9.1	0.0	0.0	0.0	0.0	0.0	18.2	16.7	27.3	50.0	45.5	16.7	0.0	6	11
Textual item + extra	9.4	18.2	9.4	4.5	18.8	22.7	12.5	4.5	18.7	4.5	31.2	40.9	0.0	0.0	32	22
Non-applicable	11.6	37.1	2.4	1.8	8.5	7.2	6.1	9.0	11.6	12.0	14.6	12.0	45.2	20.4	294	167

TABLE 5.7 (e). Relative frequency of different levels of semantic acceptability as a percentage of the total errors with each degree of graphic proximity: Adults (A) and Children (C).

DEGREE OF PROXIMITY	LEVEL OF ACCEPTABILITY — FREQUENCY (%)															
	Unacceptable		Less than a Sentence		Preceding Context		Following Context		Whole Sentence		Whole Passage		Other (N/A)		Total (100%)	
	A	C	A	C	A	C	A	C	A	C	A	C	A	C	A	C
No proximity	16.7	21.4	2.8	4.8	30.6	47.6	18.1	14.3	19.4	9.5	9.7	2.4	2.8	0.0	72	42
Key element in common	23.3	32.4	5.8	0.0	24.4	32.4	17.4	18.9	14.0	8.1	7.0	2.7	2.3	5.4	86	37
Middle portions	50.0	80.0	0.0	6.7	16.7	13.3	11.1	0.0	16.7	0.0	5.6	0.0	0.0	0.0	18	15
End portions	48.5	48.1	9.1	7.4	18.2	22.2	9.1	14.8	9.1	3.7	6.1	3.7	0.0	0.0	33	27
Beginning portion	45.6	60.9	3.9	8.6	14.2	11.3	12.1	6.6	9.6	5.3	6.4	0.0	8.2	7.3	281	151
Beginning and middle portions	42.6	55.0	5.2	1.8	14.4	11.1	13.4	9.4	15.5	10.5	7.6	2.9	1.4	3.5	291	171
Beginning and end portions	47.9	73.6	3.4	4.6	21.8	5.7	10.3	2.9	10.7	5.7	5.7	7.5	0.0	0.0	261	174
Beginning, middle and end portions	66.7	77.0	3.2	1.6	9.5	6.6	4.8	9.8	14.3	1.6	1.6	3.3	0.0	0.0	63	61
Single element different	42.2	55.4	7.4	5.9	16.6	14.5	12.5	11.9	15.1	8.3	6.1	4.0	0.0	0.0	391	303
Homograph	50.0	90.9	0.0	0.0	0.0	0.0	16.7	0.0	16.7	0.0	0.0	9.1	16.7	0.0	6	11
Textual item + extra	15.6	22.7	6.3	9.1	28.1	13.6	12.5	18.2	18.7	9.1	18.7	27.3	0.0	0.0	32	22
Non-applicable	15.0	48.5	3.1	3.6	9.5	9.0	6.8	6.6	11.2	8.4	10.2	4.2	44.2	19.8	294	167

TABLE 5.7 (f). Relative frequency of self-corrected errors and/or observer intervention as a percentage of the total number of errors with different degrees of graphic proximity to text: Adults (A) and Children (C).

DEGREE OF PROXIMITY	FREQUENCY (%)								Total (100%)	
	No correction		Self-correction		Observer intervention		Other			
	A	C	A	C	A	C	A	C	A	C
No proximity	69.4	88.1	26.4	11.9	4.2	0.0	0.0	0.0	72	42
Key letter or letters	62.8	70.3	26.7	24.3	10.5	5.4	0.0	0.0	86	37
Middle portion	72.2	53.3	22.2	40.0	5.6	0.0	0.0	6.7	18	15
End portion	51.5	85.2	30.3	14.8	15.2	0.0	3.0	0.0	33	27
Beginning portion	55.2	68.9	13.5	16.6	26.7	9.2	4.6	5.3	281	151
Beginning + middle portions	69.1	87.1	12.7	7.0	12.4	2.3	5.8	3.6	291	171
Beginning + end portions	64.4	90.2	13.8	4.0	20.0	5.1	1.8	0.7	261	174
Beginning, middle and end portions	65.1	90.2	17.5	4.9	12.7	1.6	5.2	3.3	63	61
Single grapheme difference	74.7	89.8	16.9	7.9	6.4	1.3	2.0	1.0	391	303
Homograph	83.3	100.0	0.0	0.0	16.7	0.0	0.0	0.0	6	11
Textual item + extra	75.0	86.4	15.6	13.6	0.0	0.0	9.4	0.0	32	22
Non-applicable	46.6	70.7	8.8	4.2	44.2	25.2	0.4	0.0	294	167
									1828	1181

TABLE 5.8. Relative frequency of degrees of phonemic proximity of error to text, as a percentage of the total number of errors made: Adults and Children.

DEGREE OF PHONEMIC PROXIMITY	FREQUENCY (%)	
	Adults	Children
No proximity	6.7	6.4
Key sound or sounds	3.1	3.2
Middle portions	0.9	1.2
End portions	3.7	5.5
Beginning portions	17.1	14.1
Beginning and middle portions	11.1	9.2
Beginning and end portions	13.6	14.3
Beginning, middle and end portions	2.2	3.3
Single vowel/consonent difference	23.5	26.4
Homophone	0.0	0.2
Textual item + extra	2.0	2.0
Non-applicable	16.2	14.1
Total number of errors made	1828	1181

TABLE 5.8 (i). Relative frequency of degrees of graphic proximity to text, as a percentage of the total errors with no phonemic proximity: Adults and Children.

DEGREE OF GRAPHIC PROXIMITY	FREQUENCY (%)	
	Adults	Children
No proximity	38.2	36.0
Key letter or letters	30.1	30.7
Middle portions	2.4	1.3
End portions	1.6	2.7
Beginning portions	14.6	18.7
Beginning and middle portions	4.9	1.3
Beginning and end portions	2.4	0.0
Single grapheme difference	4.9	9.3
Whole text +	0.8	0.0
Errors with no phonemic proximity	123	75
Percent of total errors	6.7	6.4

TABLE 5.8 (a). Relative frequency of errors in general error categories as a percentage of the total number of errors with different degrees of phonemic proximity to the text: Adults (A) and Children (C).

DEGREE OF PROXIMITY	GENERAL ERROR CATEGORY FREQUENCY (%)													
	Single substitution		Compound substitution		Repeated substitution		Multiple		Try		Other*		Total (100%)	
	A	C	A	C	A	C	A	C	A	C	A	C	A	C
No proximity	74.0	65.3	21.1	30.7	1.6	0.0	0.0	0.0	0.0	1.4	3.3	0.0	123	75
Key element in common	71.9	78.9	19.3	15.8	0.0	5.3	0.0	0.0	8.8	0.0	0.0	0.0	57	38
Middle portion	87.5	78.6	12.5	14.3	0.0	0.0	0.0	0.0	0.0	7.1	0.0	0.0	16	14
End portion	85.1	75.4	13.4	23.1	0.0	0.0	0.0	0.0	1.5	1.5	0.0	0.0	67	65
Beginning portion	71.2	73.1	16.6	16.8	1.9	1.2	0.0	0.0	9.6	9.0	0.7	0.0	313	167
Beginning and middle portions	75.2	67.9	15.8	13.8	0.0	2.8	0.0	0.0	8.4	14.7	0.6	0.8	202	109
Beginning and end portions	83.9	82.8	15.3	17.2	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	248	169
Beginning, middle and end portions	90.2	82.1	7.3	12.8	0.0	5.1	0.0	0.0	0.0	0.0	2.5	0.0	41	39
Single element different	80.7	82.4	16.1	17.0	2.3	0.6	0.0	0.0	0.7	0.0	0.2	0.0	429	312
Homophone	0.0	0.0	0.0	50.0	0.0	0.0	0.0	0.0	0.0	50.0	0.0	0.0	0	2
Textual item + extra	83.3	58.3	16.7	41.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	36	24
Non-applicable	0.0	2.4	2.7	1.2	0.0	0.0	5.5	10.8	0.0	0.0	91.8	85.6	296	167

* Other includes omissions, insertions and non-responses.

TABLE 5.8 (b). Relative frequency of different grammatical functions (parts of speech) of items of text for which erroneous responses were made as a percentage of the total number of errors with different degrees of phonemic proximity to the text: Adults (A) and Children (C).

DEGREE OF PROXIMITY	GRAMMATICAL FUNCTION FREQUENCY (%)												Total (100%)	
	Noun category		Verb category		Noun modifier		Verb modifier		Function word		Other			
	A	C	A	C	A	C	A	C	A	C	A	C	A	C
No proximity	17.1	12.0	10.6	5.3	15.4	16.0	0.8	1.3	56.1	65.3	0.0	0.0	123	75
Key sound	35.1	36.8	8.8	10.5	12.3	7.9	3.5	0.0	38.6	39.5	1.8	5.3	57	38
Middle portion	56.2	57.1	31.2	14.3	12.5	14.3	0.0	0.0	0.0	14.3	0.0	0.0	16	14
End portion	49.3	67.7	17.9	7.7	10.4	13.8	3.0	1.5	16.4	9.2	3.0	0.0	67	65
Beginning portion	40.6	45.5	17.9	19.2	22.7	21.6	4.5	1.2	12.5	9.6	1.9	3.0	313	167
Beginning and middle portions	47.0	45.9	21.8	18.3	22.8	24.8	4.0	5.5	4.0	2.8	0.5	2.8	202	109
Beginning and end portions	48.4	61.5	25.0	11.8	17.3	19.5	2.4	4.7	5.2	1.2	1.6	1.2	248	169
Beginning, middle and end portions	58.5	61.5	12.2	12.8	22.0	12.8	2.4	12.8	0.0	0.0	4.8	0.0	41	39
Single element different	45.7	49.0	19.3	17.6	17.7	22.1	0.9	1.3	14.2	9.0	2.2	1.0	429	312
Homophone	0.0	0.0	0.0	50.0	0.0	0.0	0.0	0.0	0.0	50.0	0.0	0.0	0	2
Textual item + extra	41.7	45.8	16.7	20.8	33.3	29.2	0.0	0.0	8.3	4.2	0.0	0.0	36	24
Non-applicable	41.9	31.1	11.1	7.2	12.5	15.6	2.0	1.8	24.3	24.6	8.1	19.8	296	167

TABLE 5.8 (c). Relative frequency of recognisable words, nonwords and others as a percentage of the total number of errors with different degrees of phonemic proximity: Adults (A) and Children (C).

DEGREE OF PROXIMITY	FREQUENCY (%)						Total (100%)	
	Recognisable word		Nonword		N/A (other)			
	A	C	A	C	A	C	A	C
No proximity	92.7	89.3	5.7	6.7	1.6	4.0	123	75
Key sound or sounds	84.2	73.7	7.0	26.3	8.8	0.0	57	38
Middle portions	75.2	57.1	18.7	35.7	6.2	7.1	16	14
End portions	88.1	49.2	9.0	49.2	3.0	1.5	67	65
Beginning portions	72.8	60.5	16.9	31.1	10.0	8.4	313	167
Beginning and middle portions	79.2	65.1	15.3	27.5	5.4	7.3	202	109
Beginning and end portions	72.2	43.8	23.0	55.0	4.8	1.2	248	169
Beginning, middle and end portions	48.8	23.1	43.9	76.9	7.3	0.0	41	39
Single word or consonent difference	83.0	66.0	14.7	33.7	2.3	0.3	429	312
Homophone	0.0	50.0	0.0	0.0	0.0	50.0	0	2
Textual item + extra	30.1	83.3	2.8	16.7	0.0	0.0	36	24
Non-applicable	30.1	24.0	0.3	1.2	69.6	74.9	296	167
							1828	1181

TABLE 5.8 (d). Relative frequency of different levels of syntactic acceptability as a percentage of the total errors with each degree of graphic proximity: Adults (A) and Children (C).

DEGREE OF PROXIMITY	LEVEL OF ACCEPTABILITY FREQUENCY (%)															
	Unacceptable		Less than a Sentence		Preceding Context		Following Context		Whole Sentence		Whole Passage		Other (N/A)		Total (100%)	
	A	C	A	C	A	C	A	C	A	C	A	C	A	C	A	C
No proximity	15.4	22.7	2.4	6.7	20.3	33.3	14.6	14.7	16.3	9.3	28.5	8.0	1.6	5.3	123	75
Key element in common	15.8	31.6	1.8	2.6	24.6	21.1	21.1	15.8	15.8	13.2	17.5	7.9	3.5	7.9	57	38
Middle portions	31.2	28.6	0.0	0.0	12.5	21.4	12.5	7.1	18.7	28.6	25.0	0.0	0.0	14.3	16	14
End portions	7.5	12.3	4.5	4.6	13.4	10.8	14.9	20.0	22.4	13.8	35.8	36.9	1.5	1.5	67	65
Beginning portion	22.4	22.8	5.8	7.2	14.4	14.4	12.8	14.4	12.5	11.4	24.6	12.6	7.7	17.4	313	167
Beginning and middle portions	21.3	22.0	4.5	3.7	19.3	8.3	17.3	22.0	19.3	16.5	16.8	16.5	1.5	11.0	202	109
Beginning and end portions	7.7	8.3	5.2	3.6	9.3	3.0	13.7	12.4	22.6	18.9	41.5	50.9	0.0	3.0	248	169
Beginning, middle and end portions	14.6	2.6	7.3	0.0	2.4	1.0	4.9	2.8	24.4	20.5	46.3	38.5	0.0	0.0	41	39
Single element different	17.2	15.7	6.8	5.1	13.3	13.8	13.1	13.5	21.0	24.0	28.2	27.2	0.5	0.6	429	312
Homophone	0.0	0.0	0.0	50.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	50.0	0	2
Textual item + extra	0.0	16.7	13.9	8.3	22.2	12.5	22.2	16.7	11.1	8.3	30.6	37.5	0.0	0.0	36	24
Non-applicable	11.5	37.1	2.4	1.8	9.1	7.8	6.1	9.0	11.5	12.0	14.5	12.0	44.9	20.4	296	167

TABLE 5.8 (e). Relative frequency of different levels of semantic acceptability as a percentage of the total errors with each degree of graphic proximity: Adults (A) and Children (C).

DEGREE OF PROXIMITY	LEVEL OF ACCEPTABILITY FREQUENCY(%)															
	Unacceptable		Less than a Sentence		Preceding Context		Following Context		Whole Sentence		Whole Passage		Other (N/A)		Total (100%)	
	A	C	A	C	A	C	A	C	A	C	A	C	A	C	A	C
No proximity	24.4	38.7	4.9	9.3	26.8	32.0	16.3	13.3	17.1	2.7	8.9	1.3	1.6	2.7	123	75
Key element in common	35.1	55.3	3.5	5.3	24.6	21.1	21.1	13.2	10.5	5.3	1.8	0.0	3.5	0.0	57	38
Middle portions	56.2	57.1	0.0	7.1	12.5	35.7	12.5	0.0	12.5	0.0	6.2	0.0	0.0	0.0	16	14
End portions	47.8	60.0	4.5	4.6	13.4	13.8	13.4	10.8	14.9	6.2	4.5	4.6	1.5	0.0	67	65
Beginning portion	45.0	61.1	5.4	5.4	15.3	12.6	11.5	7.8	9.3	5.4	6.1	1.2	7.3	6.6	313	167
Beginning and middle portions	43.1	56.0	3.5	2.8	18.8	9.2	14.9	16.5	14.9	9.2	4.0	1.8	1.0	4.6	202	109
Beginning and end portions	51.2	72.2	3.2	3.0	8.5	7.7	22.3	3.6	9.3	7.1	5.6	6.5	0.0	0.0	248	169
Beginning, middle and end portions	75.6	79.5	2.4	2.6	2.4	0.0	2.4	12.8	12.2	0.0	4.9	5.1	0.0	0.0	41	39
Single element different	39.4	53.8	6.5	5.1	15.4	13.8	11.9	10.9	17.9	9.9	8.4	6.4	0.5	0.0	429	312
Homophone	0.0	0.0	0.0	50.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	50.0	0	2
Textual item + extra	8.3	37.5	16.7	8.3	22.2	16.7	22.2	25.0	11.1	8.3	19.4	4.2	0.0	0.0	36	24
Non-applicable	14.9	48.5	3.0	3.6	10.1	9.0	6.8	6.6	11.1	8.4	10.1	4.2	43.7	19.8	296	167

TABLE 5.8 (f). Relative frequency of self-corrected errors and/or observer intervention as a percentage of the total number of errors with different degrees of phonemic proximity to text: Adults (A) and Children (C).

DEGREE OF PROXIMITY	FREQUENCY (%)								Total (100%)	
	No correction		Self-correction		Observer intervention		Other			
	A	C	A	C	A	C	A	C	A	C
No proximity	65.9	82.7	26.8	14.7	7.3	2.7	0.0	0.0	123	75
Key sound or sounds	57.9	73.7	26.3	21.1	15.9	2.6	0.0	2.6	57	38
Middle portion	75.0	78.6	18.7	7.1	0.0	7.1	6.3	7.2	16	14
End portion	55.2	83.1	23.9	13.8	16.5	1.5	4.4	1.6	67	65
Beginning portion	57.2	71.3	12.8	16.2	24.2	7.8	5.8	4.7	313	167
Beginning + middle portions	67.8	88.1	14.4	6.4	11.9	2.8	5.9	2.7	202	109
Beginning + end portions	62.9	89.3	13.7	3.6	20.9	6.9	2.5	0.2	248	169
Beginning, middle and end portions	58.5	87.2	19.5	7.7	14.6	2.6	7.4	2.5	41	39
Single vowel/consonant difference	76.5	91.0	15.9	7.4	6.1	0.3	1.5	1.3	429	312
Homophone	0.0	50.0	0.0	0.0	0.0	50.0	0.0	0.0	0	2
Textual item + extra	86.1	87.5	8.3	12.5	2.9	0.0	2.7	0.0	36	24
Non-applicable	47.0	70.7	8.8	4.2	43.9	25.2	0.3	0.0	296	167
									1828	1181

TABLE 5.9. Relative frequency of degrees of simultaneous graphic and phonemic proximity of errors to text, as a percentage of the total number of errors made: Adults and Children.

DEGREE OF PROXIMITY	FREQUENCY (%)	
	Adults	Children
No proximity	2.6	2.3
Key element in common	3.4	3.2
Middle portions in common	0.8	0.9
End portions in common	3.6	4.9
Beginning portions in common	18.5	15.2
Beginning and middle portions in common	13.1	11.2
Beginning and end portions in common	14.3	15.2
Beginning, middle and end portions in common	2.6	3.6
Single element difference	18.5	22.4
Text + extra	0.8	1.1
Non-applicable	16.1	14.1
Others*	5.8	6.0
Total number of errors made	1828	1181

* Others = errors with no phonemic but some graphic proximity.

TABLE 5.9 (b). Relative frequency of levels of simultaneous syntactic and semantic acceptability as a percentage of degrees of simultaneous graphic and phonemic proximity to text: Adults (A) and Children (C).

DEGREE OF PROXIMITY (graphic & phonemic)	LEVEL OF ACCEPTABILITY (syntactic & semantic) FREQUENCY (%)															
	Unacceptable		Less than a Sentence		Preceding Context		Following Context		Whole Sentence		Whole Passage		Other* (N/A)		Total (100%)	
	A	C	A	C	A	C	A	C	A	C	A	C	A	C	A	C
No proximity	12.8	18.5	4.2	3.7	29.7	48.1	17.1	14.8	14.9	3.7	6.4	0.0	14.9	11.2	47	27
Key letter(s) or sound(s)	14.3	31.6	3.2	5.3	25.4	18.4	17.5	13.2	9.5	5.3	4.8	0.0	25.4	26.3	63	38
Middle portions	28.6	36.4	0.0	9.1	14.3	18.2	7.1	0.0	7.1	0.0	14.3	0.0	28.6	36.4	14	11
End portions	7.9	6.9	4.8	5.1	14.3	15.5	12.7	12.1	14.3	6.9	3.2	5.2	42.9	48.3	63	58
Beginning portion	21.6	21.9	4.8	5.0	13.0	11.8	12.4	7.3	9.2	6.7	6.2	1.1	32.8	46.0	338	178
Beginning and middle portions	18.4	18.9	4.2	2.3	18.4	10.6	13.4	18.2	16.7	11.4	4.6	3.0	24.3	35.6	239	132
Beginning and end portions	8.4	8.4	3.8	3.3	21.8	7.8	8.4	3.4	9.2	6.1	6.1	6.7	42.3	62.2	261	179
Beginning, middle and end portions	14.9	2.3	2.1	2.3	4.3	0.0	4.3	11.6	19.1	2.3	0.0	4.7	55.3	76.7	47	43
Single element different	19.2	17.4	8.3	5.7	13.9	12.9	9.5	11.7	16.0	8.0	7.1	6.1	26.0	37.9	338	264
Textual item + extra	0.0	30.8	7.1	15.4	28.6	15.4	28.6	15.4	14.3	7.7	21.4	7.7	0.0	7.7	14	13
Other	13.0	21.1	3.7	8.4	26.9	22.5	15.7	8.5	19.4	7.0	11.1	2.8	10.2	29.6	108	71
Non-applicable	11.6	36.5	3.1	3.0	10.2	8.4	6.8	6.0	11.2	8.4	10.2	4.2	46.9	33.6	294	167

* In the 'other' category quite a few of the errors were syntactically but not semantically acceptable.

TABLE 5.9 (c). Relative frequency of self-corrected errors and/or observer intervention as a percentage of the total number of errors at each degree of simultaneous graphic and phonemic proximity: Adults (A) and Children (C).

DEGREE OF PROXIMITY	FREQUENCY(%)								Total (100%)	
	No correction		Self-correction		Observer intervention		Other			
	A	C	A	C	A	C	A	C	A	C
No proximity	63.8	88.9	29.8	11.1	6.4	0.0	0.0	0.0	47	27
Key element in common	58.7	71.1	25.4	21.1	15.9	2.6	0.0	5.2	63	38
Middle portion	71.4	81.8	21.4	9.1	0.0	0.0	7.2	9.1	14	11
End portion	53.8	86.2	24.6	6.1	16.9	1.7	4.7	9.6	65	58
Beginning portion	58.6	71.9	13.0	15.7	17.5	7.9	10.9	4.5	338	178
Beginning + middle portions	68.6	89.4	14.2	6.1	11.7	2.3	5.3	2.2	239	132
Beginning + end portions	65.9	90.5	13.4	2.8	18.8	5.6	1.9	1.1	261	179
Beginning, middle and end portions	59.6	86.0	1.7	0.9	17.0	2.3	21.7	10.8	47	43
Single element difference	76.6	91.3	15.9	7.2	5.9	0.4	1.6	1.1	338	264
Textual item + extra	92.9	76.9	7.1	23.0	0.0	0.0	0.0	0.1	14	13
Non-applicable	46.6	70.7	8.8	4.2	44.2	25.1	0.4	0.0	294	167
Other	68.5	78.6	24.1	17.1	6.5	4.3	0.9	0.0	108	70
									1828	1181

TABLE 5.10. Relative frequency of self-corrected errors and/or observer intervention as a percentage of the total number of errors made: Adults and Children.

SELF-CORRECTION AND OBSERVER INTERVENTION	FREQUENCY (%)	
	Adults	Children
No correction	63.3	82.9
Self correction	15.0	8.9
Observer intervention	18.9	6.4
Other	2.8	1.8
Total number of errors made	1828	1181

TABLE 5.10 (i). Relative frequency of self-correction and observer intervention as a percentage of the total number of errors made: Adults and Children.

SELF-CORRECTION AND OBSERVER INTERVENTION	FREQUENCY (%)	
	Adults	Children
No correction	63.3	82.9
Self correction	15.0	8.9
Second response incorrect	0.2	0.3
Final Correction	0.4	0.4
Unsuccessful correction	2.1	1.1
No correction - response supplied	15.5	5.8
Correction with pointer	0.3	0.2
Pointer after unsuccessful correction	0.1	0.0
Response supplied after unsuccessful correction	3.0	0.4
Total number of errors made	1828	1181

TABLE 5.10 (a). Relative frequency of items of text with different grammatical functions (parts of speech) for which errors were made among those which were either self-corrected or gave rise to observer intervention: Adults (A) and Children (C).

GRAMMATICAL FUNCTION	FREQUENCY (%)							
	No correction		Self-correction		Observer intervention		Other	
	A	C	A	C	A	C	A	C
Noun category	41.7	45.4	34.5	41.0	54.2	60.5	37.3	57.1
Verb category	17.4	14.3	22.5	12.4	13.9	9.2	25.5	23.8
Noun modifier	17.4	19.3	16.0	22.9	21.4	17.1	19.6	14.3
Verb modifier	2.1	2.1	1.1	0.0	4.6	6.6	2.0	47.6
Function word	18.2	13.9	24.4	21.9	3.5	6.6	15.7	0.0
Other	3.2	4.7	1.5	1.9	2.3	0.0	0.0	0.0
Total (100%)	1157	979	275	105	345	76	51	21

TABLE 5.10 (b). Relative frequency of levels of syntactic acceptability amongst errors which were either self-corrected or gave rise to observer intervention: Adults (A) and Children (C).

LEVEL OF ACCEPTABILITY	FREQUENCY (%)							
	No correction		Self-correction		Observer intervention		Other	
	A	C	A	C	A	C	A	C
Unacceptable	15.0	20.0	16.7	19.0	15.9	15.8	17.6	23.8
Less than a sentence	6.2	4.3	4.4	7.6	2.0	1.3	2.0	9.5
Preceeding context	14.4	12.4	20.0	20.0	6.1	2.6	13.7	0.0
Following context	14.4	16.1	13.5	6.7	5.5	3.9	23.5	19.0
Whole sentence	20.0	17.8	18.5	14.3	9.9	7.9	5.9	19.1
Whole passage	28.7	25.9	25.8	18.1	17.1	11.8	37.2	23.8
Other	1.2	3.5	1.1	14.3	43.5	56.6	0.0	4.8
Total (100%)	1157	979	275	105	345	76	51	21

TABLE 5.10 (c). Relative frequency of levels of semantic acceptability amongst errors which were either self-corrected or gave rise to observer intervention: Adults (A) and Children (C).

LEVEL OF ACCEPTABILITY	FREQUENCY %							
	No correction		Self-correction		Observer intervention		Other	
	A	C	A	C	A	C	A	C
Unacceptable	37.3	58.7	39.6	45.7	36.5	40.8	52.9	81.0
Less than a sentence	5.9	4.5	4.4	10.5	1.7	0.0	2.0	4.8
Preceeding context	16.6	13.1	26.9	19.0	9.3	3.9	11.8	4.8
Following context	13.7	10.8	12.0	5.7	2.9	2.6	15.7	4.8
Whole sentence	15.9	7.7	11.3	9.5	5.8	0.0	9.8	4.8
Whole passage	9.8	4.8	4.7	1.9	0.6	0.0	7.8	0.0
Other	0.9	0.4	1.1	7.6	43.2	52.6	0.0	0.0
Total (100%)	1157	979	275	105	345	76	51	21

TABLE 5.10 (d). Relative frequency of degrees of graphic proximity amongst errors which were either self-corrected or gave rise to observer intervention: Adults (A) and Children (C).

DEGREE OF PROXIMITY	FREQUENCY (%)							
	No correction		Self-correction		Observer intervention		Other	
	A	C	A	C	A	C	A	C
No proximity	4.3	3.8	6.9	4.8	0.9	0.0	0.0	0.0
Key element in common	4.7	2.7	8.4	8.6	2.6	2.6	0.0	0.0
Middle portion	1.1	0.8	1.5	5.7	0.3	0.0	0.0	4.8
End portion	1.5	2.3	3.6	3.8	1.4	0.0	4.8	0.0
Beginning portion	13.4	10.6	13.8	23.8	21.7	18.4	25.5	38.1
Beginning and middle portions	17.4	15.2	13.5	11.4	10.4	5.3	33.3	28.6
Beginning and end portions	14.5	16.0	13.1	6.7	11.6	11.8	9.8	4.8
Beginning, middle and end portions	3.5	5.6	4.0	2.9	2.3	1.3	5.9	9.5
Single element different	25.2	27.8	24.0	22.9	7.2	5.3	15.7	14.3
Homograph	0.4	1.1	0.0	0.0	0.3	0.0	0.0	0.0
Textual item + extra	2.1	1.9	1.8	2.9	0.0	0.0	5.9	0.0
Non-applicable	11.8	12.1	9.5	6.7	37.7	55.3	2.0	0.0
Total (100%)	1157	979	275	105	345	76	51	21

TABLE 5.10 (e). Relative frequency of degrees of phonemic proximity amongst errors which were either self-corrected or gave rise to observer intervention: Adults (A) and Children (C).

DEGREE OF PROXIMITY	FREQUENCY(%)							
	No correction		Self-correction		Observer intervention		Other	
	A	C	A	C	A	C	A	C
No proximity	7.0	6.3	12.0	10.5	2.6	2.6	0.0	0.0
Key element in common	2.9	2.9	5.5	7.6	2.6	1.3	0.0	4.8
Middle portion	1.1	1.1	1.1	1.0	0.0	1.3	2.0	4.8
End portion	3.2	5.5	5.8	8.6	3.2	1.3	5.9	4.8
Beginning portion	15.5	12.2	14.5	25.7	22.0	17.1	35.3	38.1
Beginning and middle portions	11.8	9.8	10.5	6.7	7.0	3.9	23.5	14.3
Beginning and end portions	13.5	15.4	12.4	5.7	15.1	13.2	11.8	9.5
Beginning, middle and end portions	2.1	3.5	2.9	2.9	1.4	1.3	5.9	4.8
Single element different	28.3	29.0	24.7	21.9	7.5	1.3	13.7	19.0
Homophone	0.0	0.1	0.0	0.0	0.0	1.3	0.0	0.0
Textual item + extra	2.7	2.1	1.1	2.9	0.6	0.0	0.0	0.0
Non-applicable	12.0	12.1	9.5	6.7	37.7	55.3	2.0	0.0
Total (100%)	1157	979	275	105	345	76	51	21

TABLES 5.11 - 5.20

COMPREHENSION, BRITISH ABILITY SCALES AND METALANGUAGE

Table 5.11. Frequency of correct answers to comprehension questions 1, 2 and 3 at all passage levels as a percentage of the number of each question attempted: Adults and Children.

QUESTION	FREQUENCY OF CORRECT ANSWERS (%)		NUMBER OF QUESTIONS ASKED	
	Adults	Children	Adults	Children
1	68. 4	33. 5	329	233
2	56. 7	44. 2	328	233
3	48. 8	35. 6	324	233
Total responses			981	699

Table 5.12. Comprehension Scores.

a. Adults.

PASSAGE LEVEL	COMPREHENSION GROUP		
	1	2	3
2	11	9	1
3	0	2	6
4	4	4	13
	15	15	20

b. Children.

PASSAGE LEVEL	COMPREHENSION GROUP		
	1	2	3
2	2	4	0
3	2	6	0
4	5	4	1
	9	14	1

Table 5.13. Nature of responses to comprehension questions made by Adults and Children.

a. Adults

LEVEL OF RESPONSE	PASSAGE LEVEL		
	2	3	4
Incorrect	34. 9	13. 5	18. 2
Correct	43. 3	60. 7	57. 6
Partially correct	16. 7	22. 5	20. 1
Unrelated to text	4. 9	3. 4	4. 2

b. Children

LEVEL OF RESPONSE	PASSAGE LEVEL		
	2	3	4
Incorrect	40. 0	31. 3	43. 8
Correct	35. 1	42. 1	34. 4
Partially correct	20. 6	23. 8	20. 8
Unrelated to text	4. 3	2. 8	1. 0

Table 5.14. Number of subjects scoring in short term memory groups 1 - 3: Adults and Children.

	GROUP			Total
	1	2	3	
Adults	11 (22%)	34 (68%)	5 (10%)	50
Children	4 (16%)	16 (64%)	5 (20%)	25

Table 5.15. Raw scores of subjects on short term memory scale: Adults and Children.

SCORE	ADULTS		CHILDREN	
	number of (%) subjects	centile	number of (%) subjects	centile
4	3 (6)	1	0 (0)	
5	2 (4)	1	1 (4)	1
6	6 (12)	1	3 (12)	3
7	10 (20)	2	6 (24)	8
8	11 (22)	7	5 (20)	23
9	9 (18)	19	3 (12)	48
10	4 (8)	38	2 (8)	71
11	3 (6)	61	2 (8)	86
12	1 (2)	81	2 (8)	95
13	0 (0)		0 (0)	
14	1 (2)	93	1 (4)	99
Total number of subjects	50		25	

Table 5.16. Number of subjects scoring in word reading groups 1 - 3: Adults and Children.

	GROUP			
	1	2	3	Total
Adults	11 (23%)	19 (40%)	21 (41%)	51
Children	3 (12%)	10 (40%)	12 (48%)	25

Table 5.17. Raw scores of subjects on word reading scales: Adults and Children.

SCORE	ADULTS		CHILDREN	
	number of subjects (%)	centile	number of subjects (%)	centile
Scale A				
1	1 (2)		0	
16	2 (4)		0	
20	1 (2)		0	
25	0		1 (4)	
30	1		0	
35	0		1 (4)	
Scale E				
1	0		0	
2	5 (10)	1	1 (4)	1
3	1 (2)	1	0	
4	0		0	
5	4 (8)	2	0	
6	2 (4)	2	1 (4)	4
7	2 (4)	2	1 (4)	5
8	3 (6)	3	2 (8)	6
9	7 (14)	4	2 (8)	6
10	1 (2)	5	1 (4)	7
11	0		3 (12)	8
12	0		0	
13	0		4 (16)	13
14	6 (12)	12	3 (12)	15
15	0		0	
16	2 (4)	19	1 (4)	25
17	3 (6)	23	0	
18	4 (8)	32	2 (8)	46
19	1 (2)	46	2 (8)	61
20	5 (10)	46	2 (8)	61
Total number of subjects	51		25	

Table 5.18. Number of subjects scoring in definition groups: Adults and Children.

	GROUP			
	1	2	3	Total
Adults	34 (67%)	5 (10%)	12 (23%)	51
Children	7 (28%)	17 (68%)	1 (4%)	25

Table 5.19. Raw scores of subjects on definition scale: Adults and Children.

SCORE	ADULTS		CHILDREN	
	number of subjects (%)	centile	number of subjects (%)	centile
0	1 (2)	1	1 (4)	1
1	4 (8)	1	3 (12)	1
2	9 (18)	1	3 (12)	1
3	3 (6)	1	4 (16)	2
4	2 (4)	1	2 (8)	4
5	5 (10)	1	4 (16)	7
6	4 (8)	1	4 (16)	11
7	2 (4)	1	1 (4)	14
8	0	1	2 (8)	19
9	4 (8)	1	1 (4)	24
10	4 (8)	3		
11	1 (2)	6		
12	0			
13	0			
14	0			
15	3 (6)	23		
16	0			
17	2 (4)	43		
18	4 (8)	61		
19	2 (4)	80		
20	1 (2)	81		
Total number of subjects	51		25	

Table 5.20. Scores on metalanguage questions: number of subjects for each score.

a. Adults

SCORE	NUMBER OF SUBJECTS Question								
	1	2	3	4	5	6	7	8	9
0	13	2	1	3	12	4	8	21	19
1	0	1	0	12	11	1	8	10	5
2	21	31	33	19	11	29	18	3	10

b. Children

SCORE	NUMBER OF SUBJECTS Question								
	1	2	3	4	5	6	7	8	9
0	8	1	1	5	5	4	4	18	19
1	0	0	0	3	14	3	12	2	0
2	12	19	19	12	1	13	4	0	1

Key to questions:

1	Sentence	6	Upper and lower case
2	Word	7	Capitals
3	Letter	8	Apostrophe
4	Full stop	9	Inverted commas
5	Comma		

APPENDIX VIII

TABLES 7.1 - 7.14. CHAPTER 7

ERROR ANALYSIS - TEACHING GROUPS

TABLE 7.1. Relative frequency of general error types as a percentage of the total number of errors made: Teaching Groups.

ERROR TYPE	FREQUENCY (%)							
	TEACHING GROUP						SAMPLE	
	1	2	4	5	6	7	Adults	Children
Single Substitution	50.0	70.5	63.8	76.2	65.8	61.1	65.6	66.2
Compound substitution	13.2	12.4	13.3	9.5	17.0	13.7	14.0	16.0
Repeated substitution	0.0	0.5	1.5	3.2	1.1	0.6	1.1	0.0
Single word multiple	0.0	1.1	0.5	0.0	1.0	1.2	0.8	1.0
Compound multiple	1.5	0.3	0.3	0.0	0.6	0.0	0.3	0.3
Repeated multiple	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2
Single word insertion	17.6	2.9	4.1	0.0	2.3	0.9	3.0	1.6
Compound insertion	2.9	1.1	0.8	0.0	0.2	0.0	0.5	0.2
Single word omission	4.4	2.9	5.6	0.0	1.3	1.5	2.6	1.9
Compound omission	7.4	1.6	0.3	0.0	0.4	0.0	0.8	3.6
Repeated omission	0.0	0.0	0.0	0.0	0.4	0.0	0.1	0.0
No response	1.5	4.5	5.6	8.7	5.7	14.2	7.1	2.8
Punctuation	0.0	0.5	0.5	0.0	0.6	0.3	0.4	1.3
Compound punctuation	1.5	0.5	0.3	0.8	0.2	0.9	0.5	0.8
Single word try	0.0	1.1	3.6	1.6	3.3	5.3	3.0	3.1
Compound try	0.0	0.3	0.0	0.0	0.2	0.0	0.1	0.1
Total (100%)	68	380	392	126	523	339	1828	1181

TABLE 7.2. Relative frequency of grammatical functions as a percentage of the total number of errors made: Teaching Groups.

GRAMMATICAL FUNCTION	FREQUENCY (%)							
	TEACHING GROUP						SAMPLE	
	1	2	4	5	6	7	Adults	Children
Noun	33.8	41.3	41.6	38.9	44.7	46.6	42.9	46.1
Verb	14.7	17.4	18.6	20.6	17.6	19.8	17.7	14.0
Noun modifier	14.7	19.5	18.1	25.4	16.1	17.1	18.0	19.4
Verb modifier	1.5	2.6	2.0	1.6	1.9	3.8	2.4	2.5
Function word	33.8	18.2	16.1	8.7	17.4	12.1	16.3	13.9
Other	1.5	1.1	3.5	4.8	2.4	3.6	2.7	4.0
Total (100%)	68	380	392	126	523	339	1828	1181

TABLE 7.3. Relative frequency of nonwords, recognisable words and other errors as a percentage of the total number of errors made: Teaching Groups.

ERROR TYPE	FREQUENCY (%)							
	TEACHING GROUP						SAMPLE	
	1	2	4	5	6	7	Adults	Children
Nonwords	4.4	11.1	9.4	24.6	16.8	12.7	13.3	31.2
Recognisable words	79.4	77.1	74.2	64.3	69.8	63.7	71.1	55.6
Other	16.2	11.8	16.3	11.1	13.4	23.6	15.5	13.2
Total (100%)	68	380	392	126	523	339	1828	1181

TABLE 7.4. Relative frequency of syntactic acceptability of errors at different contextual levels, as a percentage of the total number of errors made: Teaching Groups.

7.4.(i). Overall syntactic acceptability.

LEVEL OF ACCEPTABILITY	FREQUENCY (%)							
	TEACHING GROUP						SAMPLE	
	1	2	4	5	6	7	Adults	Children
Completely unacceptable	4.4	12.4	18.9	15.9	14.3	19.2	15.5	19.7
Acceptable in some way	94.0	82.9	73.4	73.8	77.4	62.5	75.4	72.6
Other	1.5	4.7	7.7	10.3	8.2	18.3	9.1	7.7
Total:(100%)	68	380	392	126	523	339	1828	1181

7.4.(ii). Acceptable in some way.

LEVEL OF ACCEPTABILITY	FREQUENCY (%)							
	TEACHING GROUP						SAMPLE	
	1	2	4	5	6	7	Adults	Children
Passage	64.7	29.2	22.2	27.0	25.8	20.6	26.3	24.3
Sentence	19.1	18.9	15.1	14.3	19.5	16.2	17.5	16.9
Preceding context	2.9	17.4	16.8	15.9	12.6	8.9	13.7	12.3
Following context	5.9	12.6	14.6	14.3	13.0	11.8	12.9	14.6
Units of less than a sentence	1.4	4.8	4.7	2.3	6.5	5.0	5.0	4.5
Total:	94.0	82.9	73.4	73.8	77.4	62.5	75.4	72.6

7.4.(ii).a. Syntactic acceptability in preceding contexts at sentence level.

LEVEL OF ACCEPTABILITY	FREQUENCY (%)							
	TEACHING GROUP						SAMPLE	
	1	2	4	5	6	7	Adults	Children
Preceding part of sentence	2.9	13.7	14.0	13.5	8.8	8.0	10.9	10.2
Preceding part of sentence + text to end of clause	0.0	0.5	1.0	2.4	2.3	0.6	1.3	0.7
Preceding part of sentence + text to end of phrase	0.0	0.0	0.0	0.0	0.4	0.0	0.1	0.0
Preceding part of sentence + surrounding words	0.0	3.2	1.8	0.0	1.1	0.3	1.4	1.4
Total:	2.9	17.4	16.8	15.9	12.6	8.8	13.7	12.3

7.4.(ii).b. Syntactic acceptability in following contexts at sentence level.

LEVEL OF ACCEPTABILITY	FREQUENCY (%)							
	TEACHING GROUP						SAMPLE	
	1	2	4	5	6	7	Adults	Children
Following part of sentence	0.0	5.0	5.9	6.3	6.3	5.6	5.6	5.5
Following part of sentence + text to end of clause	5.9	3.2	4.6	3.2	4.0	3.2	3.8	4.0
Following part of sentence + text to end of phrase	0.0	1.8	3.3	4.0	2.1	2.7	2.5	3.8
Following part of sentence + surrounding words	0.0	2.6	0.8	0.8	0.6	0.3	1.0	1.3
Total:	5.9	12.6	14.6	14.3	13.0	11.8	12.9	14.6

7.4.(ii).c. Syntactic acceptability in units of less than a sentence.

LEVEL OF ACCEPTABILITY	FREQUENCY (%)							
	TEACHING GROUP						SAMPLE	
	1	2	4	5	6	7	Adults	Children
Clause or more	0.0	1.6	0.5	0.0	1.3	1.8	1.1	1.0
Phrase or more	0.0	1.1	2.8	1.6	3.6	0.9	2.1	1.4
Surrounding words	1.5	2.1	1.5	0.8	1.5	2.4	1.8	2.1
Total:	1.4	4.8	4.7	2.3	6.5	5.0	5.0	4.5

TABLE 7.5. Relative frequency of semantic acceptability of errors at different contextual levels, as a percentage of the total number of errors made: Teaching Groups.

7.5.(i). Overall semantic acceptability.

LEVEL OF ACCEPTABILITY	FREQUENCY (%)							
	TEACHING GROUP						SAMPLE	
	1	2	4	5	6	7	Adults	Children
Completely unacceptable	16.2	34.2	39.3	43.7	40.3	38.9	37.9	56.8
Acceptable in some way	82.4	61.3	53.3	46.0	51.8	43.1	53.2	38.8
Other	1.5	4.5	7.4	10.3	7.8	18.0	8.9	4.4
Total: (100%)	68	380	392	126	523	339	1828	1181

7.5.(ii). Acceptable in some way.

LEVEL OF ACCEPTABILITY	FREQUENCY (%)							
	TEACHING GROUP						SAMPLE	
	1	2	4	5	6	7	Adults	Children
Passage	35.3	7.9	7.7	5.6	5.7	3.2	7.2	4.1
Sentence	23.5	14.2	12.0	13.5	12.2	12.4	13.1	7.3
Preceding context	11.8	21.0	16.8	17.5	17.2	11.2	16.1	12.9
Following context	8.8	13.2	12.2	7.2	10.9	11.8	11.5	9.7
Units of less than a sentence	3.0	5.0	4.6	2.2	5.7	4.5	4.8	4.7
Total:	82.4	61.3	53.3	46.0	51.8	43.1	53.2	38.8

7.5.(ii).a. Semantic acceptability in preceding contexts at sentence level.

LEVEL OF ACCEPTABILITY	FREQUENCY (%)							
	TEACHING GROUP						SAMPLE	
	1	2	4	5	6	7	Adults	Children
Preceding part of sentence	8.8	16.1	13.3	15.1	12.0	9.4	12.7	9.8
Preceding part of sentence + text to end of clause	0.0	1.6	1.0	0.8	2.5	0.6	1.4	0.8
Preceding part of sentence + text to end of phrase	0.0	0.0	0.0	0.0	1.0	0.3	0.3	0.0
Preceding part of sentence + surrounding words	2.9	3.4	2.6	1.6	1.7	0.9	2.1	2.3
Total:	11.8	21.1	16.8	17.5	17.2	11.2	16.5	12.9

7.5.(ii).b. Semantic acceptability in following contexts at sentence level.

LEVEL OF ACCEPTABILITY	FREQUENCY (%)							
	TEACHING GROUP						SAMPLE	
	1	2	4	5	6	7	Adults	Children
Following part of sentence	0.0	5.0	5.9	4.8	5.2	5.9	5.2	4.7
Following part of sentence + text to end of clause	7.4	3.9	3.6	0.0	2.5	2.7	3.1	3.1
Following part of sentence + text to end of phrase	0.0	2.9	1.5	0.8	2.5	2.7	2.2	1.4
Following part of sentence + surrounding words	1.5	1.3	1.3	1.6	0.8	0.6	1.0	0.5
Total:	8.8	13.2	12.2	7.1	10.9	11.8	11.5	9.7

7.5.(ii).c. Syntactic acceptability in units of less than a sentence.

LEVEL OF ACCEPTABILITY	FREQUENCY (%)							
	TEACHING GROUP						SAMPLE	
	1	2	4	5	6	7	Adults	Children
Clause or more	1.5	1.3	0.8	0.0	1.5	1.8	1.3	1.0
Phrase or more	0.0	1.6	2.0	1.6	1.1	0.6	1.3	1.4
Surrounding words	1.5	2.1	1.8	0.8	3.1	2.1	2.2	2.3
Total:	3.0	5.0	4.6	2.4	5.7	4.5	4.8	4.7

TABLE 7.6. Relative frequency of errors showing simultaneous syntactic and semantic acceptability as a percentage of the total number of errors made: Teaching Groups.

LEVEL OF ACCEPTABILITY	FREQUENCY(%)							
	TEACHING GROUP						SAMPLE	
	1	2	4	5	6	7	Adults	Children
Unacceptable	4.4	12.4	18.9	15.9	14.3	19.2	15.5	19.6
Clause or more	1.5	1.3	0.8	0.0	1.5	1.8	1.3	0.9
Phrase or more	0.0	1.6	2.1	1.6	1.1	0.6	1.3	1.4
Surrounding words	1.5	2.1	1.9	0.8	3.1	2.1	2.2	2.3
Preceding context	11.7	21.0	17.0	18.5	17.3	11.2	16.6	12.9
Following context	10.4	13.3	12.3	7.2	10.6	11.9	11.6	9.7
Whole sentence	23.5	14.2	12.0	13.5	12.3	12.3	13.1	7.3
Whole passage	35.3	7.9	7.7	5.6	5.7	3.2	7.2	4.1
Non applicable	1.5	4.5	7.4	10.3	7.8	18.0	8.9	4.4
Other	10.2	21.7	19.9	26.6	26.3	19.7	22.4	37.3
Total (100%)	68	380	392	126	523	339	1828	1181

TABLE 7.6.(i). Relative frequency of errors which were acceptable syntactically but unacceptable semantically as a percentage of the total number of errors made: Teaching Groups.

LEVEL OF ACCEPTABILITY	FREQUENCY % TEACHING GROUP					
	1	2	4	5	6	7
Totally unacceptable	4.4	12.4	18.9	15.9	14.3	19.2
Whole passage syntactically acceptable (semantically unacceptable)	11.8	12.6	8.2	13.5	11.3	10.3
Whole sentence syntactically acceptable (semantically unacceptable)	0.0	2.6	3.8	3.2	5.5	4.7
Other syntactically acceptable (semantically unacceptable)	0.0	6.6	8.4	11.1	9.2	4.7
Total	16.2	34.2	39.3	43.7	40.3	38.9

TABLE 7.7. Relative frequency of degrees of graphic proximity to text as a percentage of the total number of errors made: Teaching Groups.

DEGREE OF PROXIMITY	FREQUENCY (%)							
	TEACHING GROUP						SAMPLE	
	1	2	4	5	6	7	Adults	Children
No proximity	7.4	5.5	3.3	1.6	4.0	2.9	3.9	3.6
Key letter(s)	10.3	4.5	2.8	4.8	5.0	5.6	4.7	3.2
Middle portions	4.4	0.5	1.3	0.0	1.1	0.6	1.0	1.3
End portions	1.5	2.1	1.5	2.4	2.1	1.2	1.8	2.3
Beginning portions	4.4	13.2	11.7	17.5	16.4	21.8	15.4	12.8
Beginning and middle portions	5.9	14.2	17.1	18.3	17.0	15.9	15.9	14.5
Beginning and end portions	5.9	13.4	15.6	16.7	15.1	13.3	14.3	14.7
Beginning, middle and end portions	1.5	5.0	3.3	1.6	3.4	2.9	3.4	5.2
Single grapheme different	17.6	22.1	23.2	26.2	22.6	15.6	21.4	25.7
Homograph	0.0	0.0	0.3	0.0	0.6	0.6	0.3	0.9
Textual item + extra	1.5	3.2	2.0	1.6	1.0	1.2	1.8	1.9
Non-applicable	39.7	16.3	17.9	9.5	11.7	18.3	16.1	14.1
Total (100%)	68	380	392	126	523	339	1828	1181

TABLE 7.8. Relative frequency of degrees of phonemic proximity to text as a percentage of the total number of errors made: Teaching Groups.

DEGREE OF PROXIMITY	FREQUENCY (%)							
	TEACHING GROUP						SAMPLE	
	1	2	4	5	6	7	Adults	Children
No proximity	16.2	7.6	4.3	8.7	6.3	6.5	6.7	6.4
Key sound(s)	2.9	2.9	2.3	1.6	2.9	5.3	3.1	3.2
Middle portions	2.9	0.8	1.5	0.0	1.0	0.0	0.9	1.2
End portions	4.4	2.9	4.6	7.1	4.0	1.5	3.7	5.5
Beginning portions	1.5	15.5	16.6	16.7	18.2	21.2	17.1	14.1
Beginning and middle portions	4.4	8.7	11.5	12.7	12.6	11.5	11.1	9.2
Beginning and end portions	5.9	13.9	12.8	13.5	15.7	12.4	13.6	14.3
Beginning, middle and end portions	0.0	3.2	1.8	0.8	2.5	2.4	2.2	3.3
Single vowel/consonant different	22.1	24.2	24.7	27.0	24.1	19.2	23.5	26.4
Homophone	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.2
Textual item + extra	0.0	3.7	2.0	2.4	1.0	1.8	2.0	2.0
Non-applicable	39.7	16.6	17.9	9.5	11.9	18.3	16.2	14.1
Total (100%)	68	380	392	126	523	339	1828	1181

TABLE 7.9. Relative frequency of degrees of simultaneous graphic and phonemic proximity of errors to text as a percentage of the total number of errors made: Teaching Groups.

DEGREE OF PROXIMITY	FREQUENCY (%)							
	TEACHING GROUP						SAMPLE	
	1	2	4	5	6	7	Adults	Children
No proximity	4.4	3.4	1.8	1.6	2.9	2.1	2.6	2.3
Key element in common	2.9	2.9	2.3	3.2	3.3	5.9	3.4	3.2
Middle portions	2.9	0.8	1.2	0.0	1.0	0.0	0.8	0.9
End portions	4.4	2.9	4.6	5.6	4.2	1.8	3.6	4.9
Beginning portions	3.0	18.9	17.5	19.1	19.4	22.7	18.5	15.2
Beginning and middle portions	5.9	12.1	14.1	15.1	13.8	14.5	13.1	11.2
Beginning and end portions	7.4	14.9	13.5	15.9	16.6	13.6	14.3	15.2
Beginning, middle and end portions	0.0	4.0	2.8	0.8	2.7	1.8	2.6	3.6
Single element different	16.2	20.0	20.6	21.4	19.8	13.6	18.5	22.4
Textual item + extra	0.0	1.6	1.0	0.8	0.2	0.6	0.8	1.1
Non-applicable	39.7	16.3	17.9	9.5	11.7	18.3	16.1	14.1
Others	13.2	2.2	2.7	7.0	4.4	5.1	5.8	6.0
Total: (100%)	68	380	392	126	523	339	1828	1181

TABLE 7.10. Relative frequency of self-correction and intervention as a percentage of the total number of errors made: Teaching Groups.

SELF-CORRECTION AND INTERVENTION	FREQUENCY (%)							
	TEACHING GROUP						SAMPLE	
	1	2	4	5	6	7	Adults	Children
No correction	72.1	55.5	73.7	52.4	65.8	58.4	63.3	82.9
Self-correction	25.0	28.9	11.2	12.7	12.6	6.5	15.0	8.9
Observer intervention	2.9	12.7	13.0	31.8	18.7	30.9	18.9	6.4
Other	0.0	2.9	2.1	2.4	3.7	4.1	2.8	1.8
Total: (100%)	68	380	392	126	523	339	1828	1181

Table 7.11. Number of subjects in each Tgroup making comprehension scores 1, 2 and 3 at reading levels 2, 3 and 4.

READING LEVEL	Score	TEACHING GROUP 1	2	4	5	6	7
	1		1	1	2	5	3
2	2		1	2		3	3
	3				1	1	1
	1						
3	2						1
	3		1	2	2		1
	1		1	1		2	
4	2	1	1	1		1	
	3	3	6	2		1	
Missing		1	1	1	0	2	4
Total subjects		5	11	10	5	15	13

Table 7.12. Number of subjects in each Tgroup with short term memory scores in groups 1, 2 and 3.

SHORT TERM MEMORY GROUP	TEACHING GROUP 1	2	4	5	6	7
1	0	2	2	1	2	4
2	4	5	6	3	9	7
3	0	4	0	0	1	0
Missing	1	0	2	1	3	2
Total subjects	5	11	10	5	15	13

Table 7.13. Number of subjects in each Tgroup with word reading scores in groups 1, 2 and 3.

WORD READING GROUP	TEACHING GROUP 1	2	4	5	6	7
1	0	0	2	1	3	5
2	0	3	3	3	4	6
3	4	8	5	0	4	0
Missing	1	0	0	1	4	2
Total subjects	5	11	10	5	15	13

Table 7.14. Number of subjects in each Tgroup with definitions scores in groups 1, 2 and 3.

DEFINITIONS GROUP	TEACHING GROUP 1	2	4	5	6	7
1	0	4	7	2	8	9
2	0	3	2	2	1	1
3	4	4	1	0	2	1
Missing	1	0	0	1	4	2
Total subjects	5	11	10	5	15	13

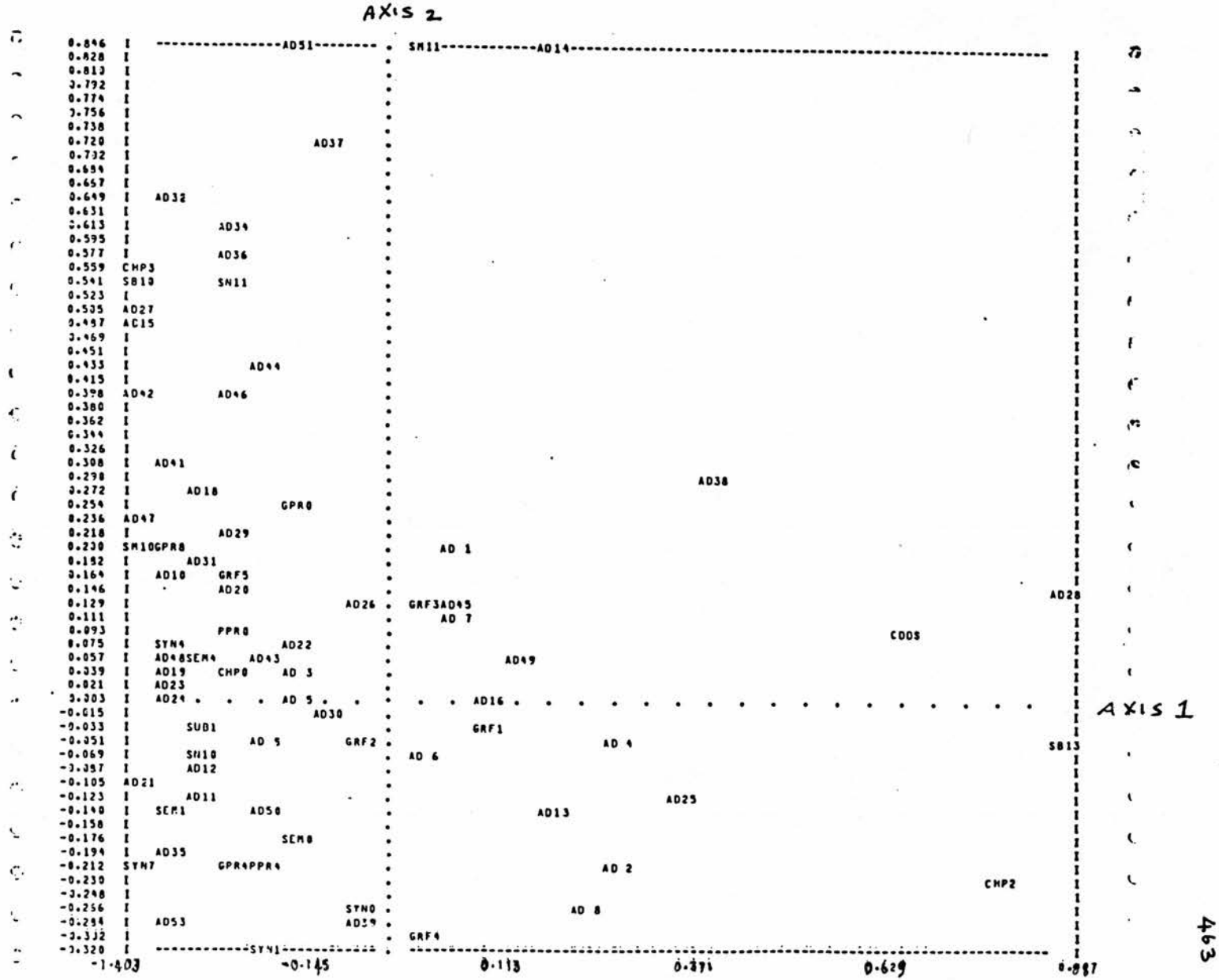
APPENDIX IX. CORRESPONDENCE ANALYSIS.

Correspondence analysis was developed in the 1960s by a group of French statisticians. It is a statistical tool which can be used as a "unifying technique in exploratory multidimensional analysis, linking up with the rationale of classification, regression and clustering. It is one of the techniques which have led to the elaboration of a new statistical philosophy....where importance is placed on inductive strategies and reasoning in data analysis" (Greenacre, 1980).

In the diagrams shown (Figures A.8.1 - 6), the more highly correlated a subject is with an axis, the further away from the average their error profile will be. All the proportions of variables in the data are related here to all the other variables. The diagrams explain the variation between the errors and the people. Beginning with an average profile, each axis explains as much of the variation from it as possible. The result is a new avarage profile based on the first average and the first axis. What remains is explained by the next axis. Each axis is independent of the rest.

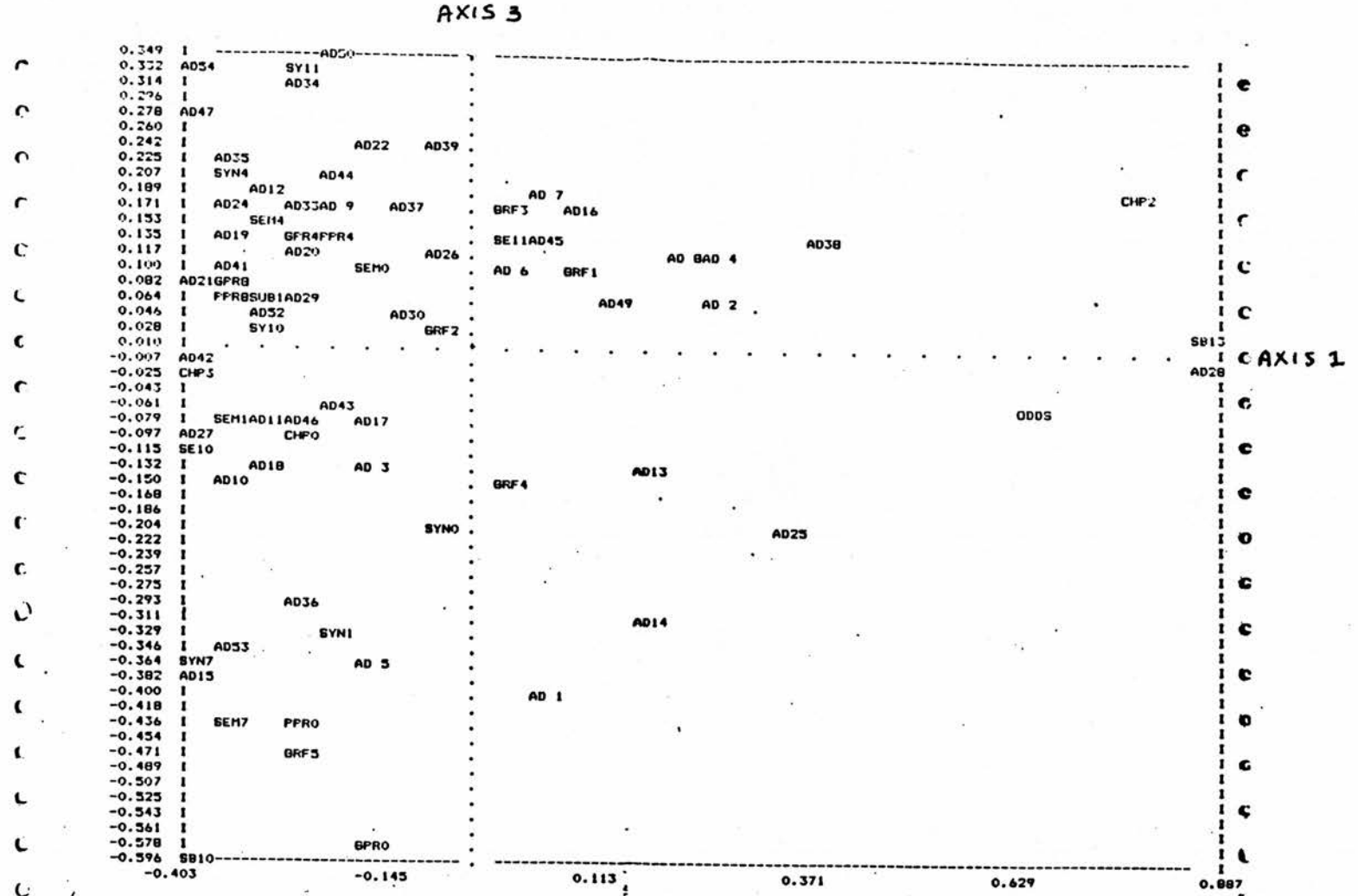
The variation is expressed as the total variation within the data set.

A fuller explanation of the method can be found in Greenacre (1980).



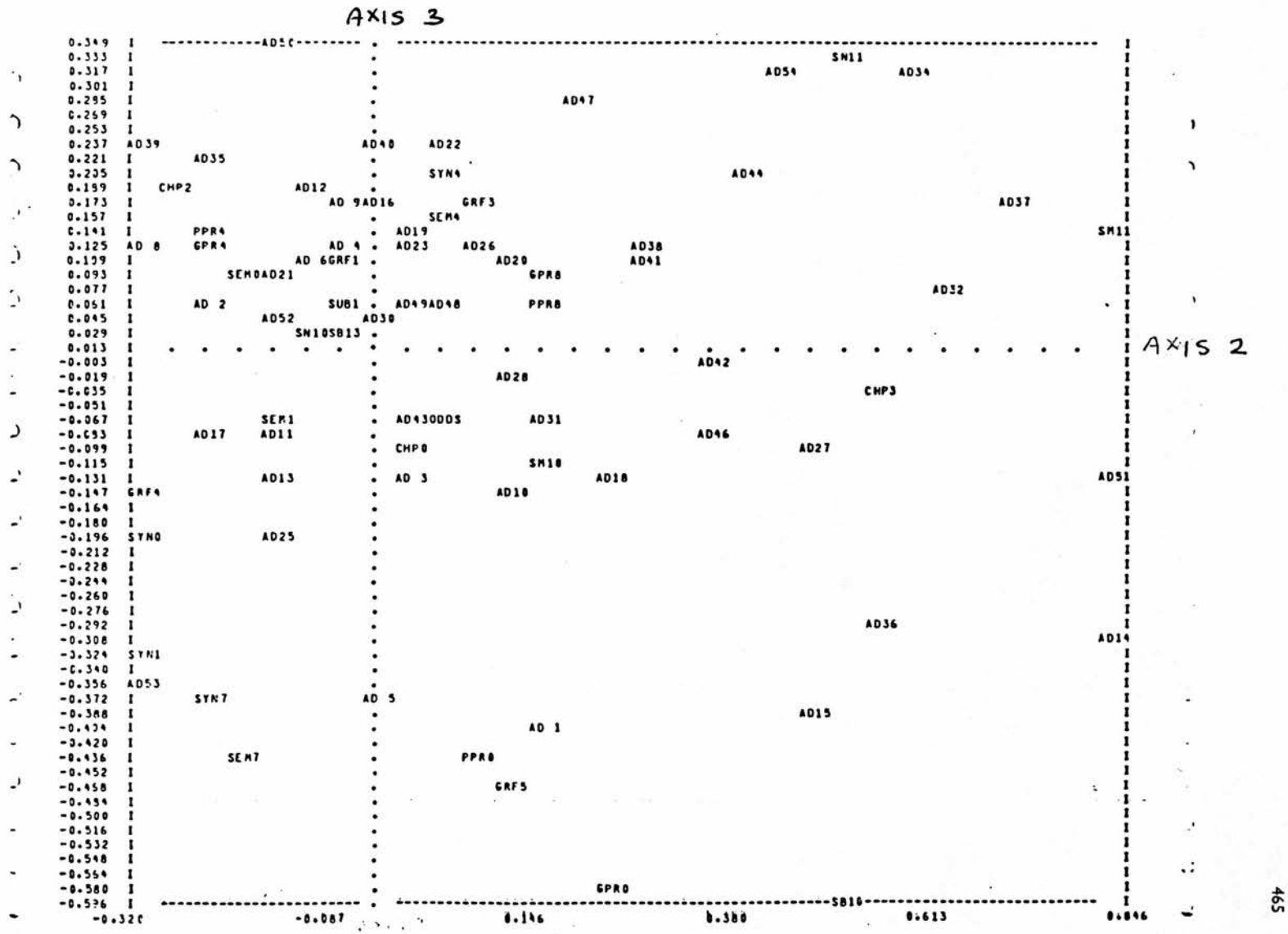
Adults axes 1 & 2

Fig. A. 8-1



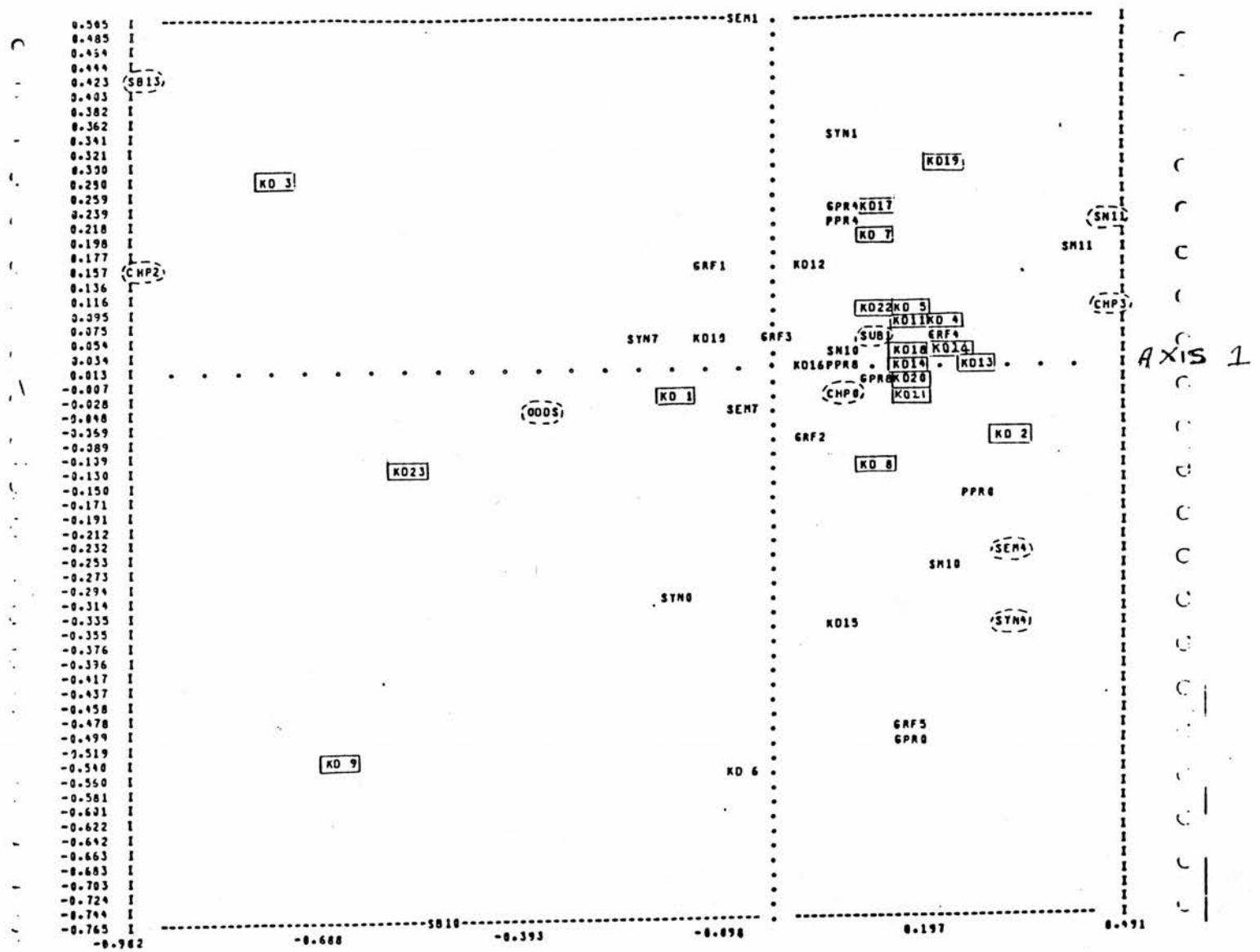
Adults axes 1& 3

Fig. A.8-2



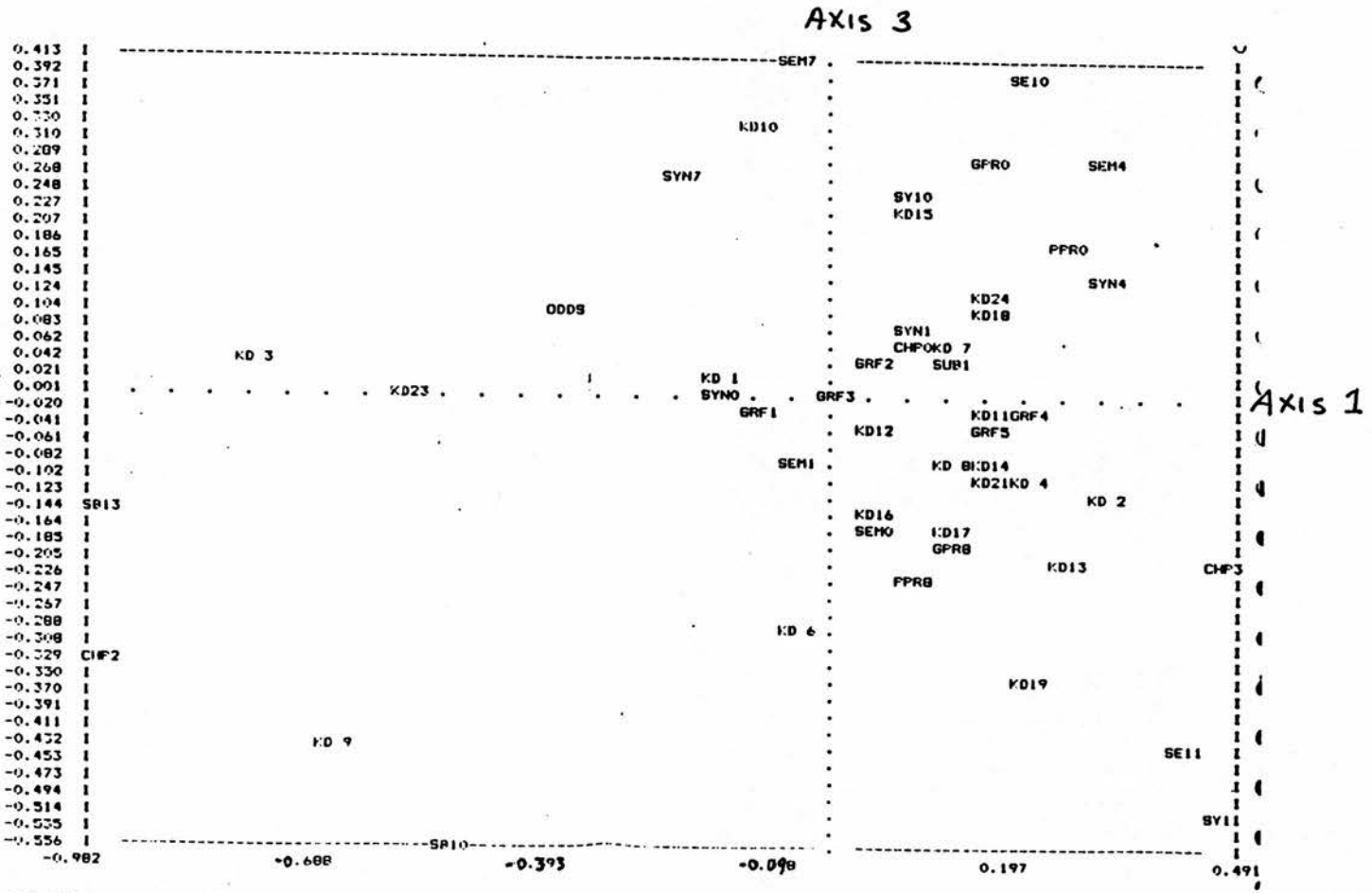
Adults axes 2 & 3

Fig. A.8-3



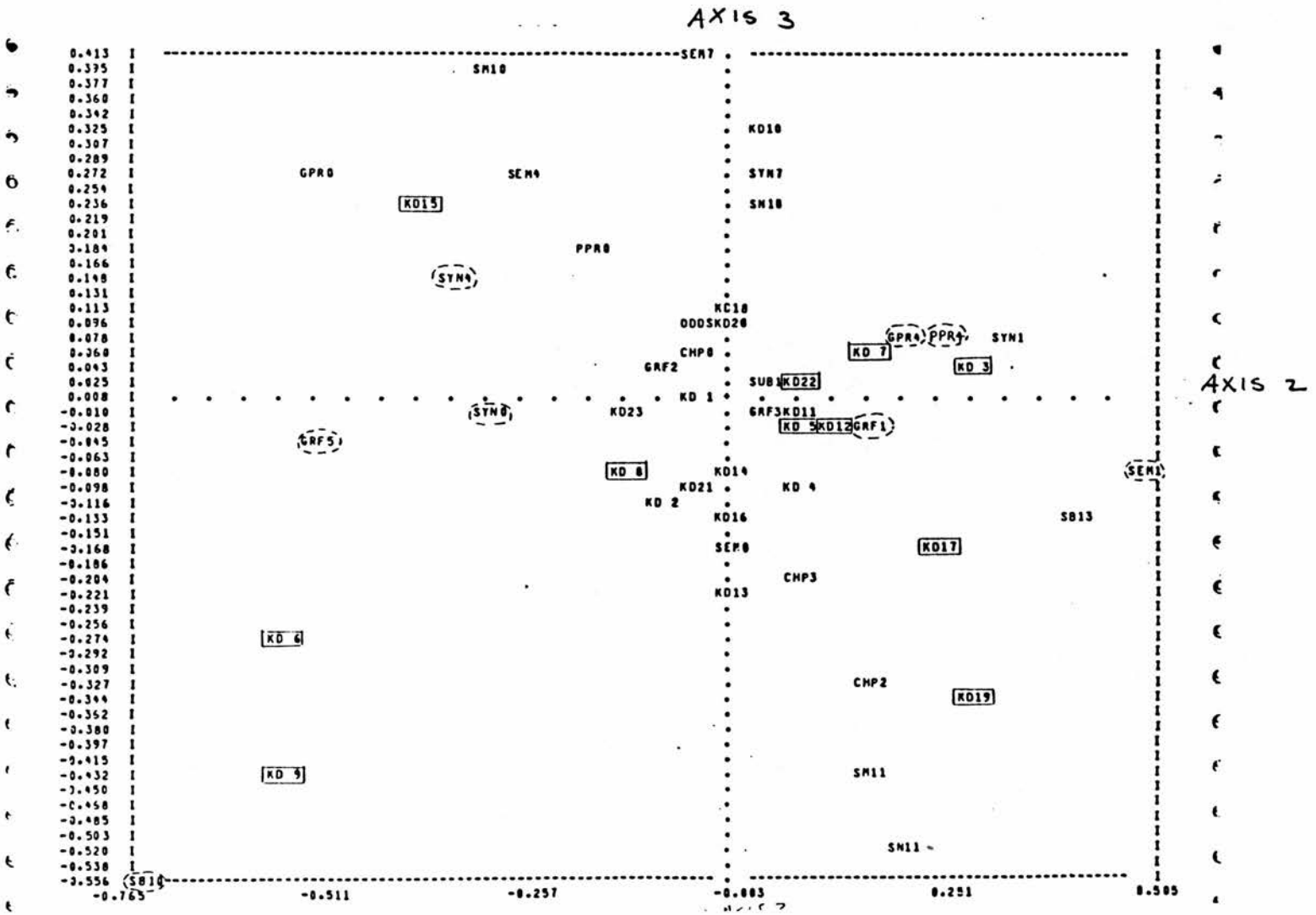
Children axes 1 & 2

Fig. A.8-4



Children axes 1 & 3

Fig. A. 8-5



Children axes 2 & 3

Fig. A. 8-6